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Canada Considering War-Time Eventualities

Effect of World Conflict On Pulp and Paper Industry Given Much Thought By Canadian Manufacturers—Price Reductions Held Responsible For Decline In Swedish Pulp Exports — More Finnish News Used.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 28, 1939—As in every other department of human activity, the past week has been one of great anxiety in pulp and paper manufacturing circles and much thought has been given to planning for eventualities in case of war. This much can be said of the situation, that the industry is far better prepared, both as to experience and organization, to meet war-time eventualities than it was when the last war occurred, and is fully prepared, as a unit, to co-operate with customers in meeting their requirements as to supply and in avoiding the perils of a runaway market.

Effect of World War on Canadian Industry

The assumption is that war would bring about a great increase in demand for Canadian pulp and paper on this continent, both by manufacturing interests, using pulp for many purposes and by newspaper publishers through increase in circulation. This demand would be accentuated by the difficulties of ocean transport for supplies from Europe. Confidence is felt that Canadian mills could meet the situation as to supply, not only because at present in many cases only about 30% of potential production capacity is being used, but also because, in the case of pulp, large mills now idle could be brought into production.

War Would Bring Many Complications

It is taken for granted that an economic feature affecting production would be an increase in cost of materials and labor, not withstanding the fact that government regulation of these factors would be much more stringent than in the last war. It is also taken for granted that a feature would be that the Canadian dollar, through its close association with the pound sterling, would be at a discount, as compared with the American dollar. This increased production cost would be offset by the measure in which American funds in payment for pulp and paper would command a premium in this country.

The extent to which prices might rise is conjectural, but, judging from such contacts as your correspondent has, one determination of leaders who have learned how to co-operate on the "live and let live" principle, is that their customers shall be protected to the limit of their power both as to continuity of supply and stability of price.

The Swedish Pulp Industry

Extracts received here from a British government report on economic and commercial conditions in Sweden, paint a bright picture of industrial activity, but says:

"Upon this bright picture, on which all concerned are to be congratulated, there appears to be only one dark spot. Although the shipyards enjoyed record activity and have orders in hand which will ensure for them full employment up to the close of 1940, and there has been a noticeable recovery in the textile industry, there was a reduction in the export industries. The pulp industry changed in twelve months from the most prosperous to the most depressed in Sweden."

One authority here, commenting on the above, says that Swedish pulp producers themselves are to blame for this situation, because of the drastic slashing of prices which they put into effect.

Finnish Newsprint Exports

Widespread expansion in newsprint exports by Finland is attributed here to increasing use of Finnish newsprint by the United States.

According to figures published here, Finnish newsprint exports in June showed a gain of 54.8 per cent over those of June, 1938, bringing the net increase for the first six months of the year to 49.8 per cent, 240,544 tons comparing with 160,556 tons for the first half of 1938. For the six months to June, gains in such imports by the United States ranged from 31.5 per cent to 71.6 per cent (January was lower by 13.3 per cent)—and the six-month aggregate at 159,484 tons exceeded a year ago by 35.7 per cent. In the same period shipments by Canadian mills to the United States market rose by about 21 per cent, but while the Canadian proportion of total U. S. supply fell from 61 per cent to 60 per cent, Europe's share rose from 9 per cent to 10 per cent. For the year 1937, the respective figures for Canada and Europe in the U. S. supply were 68 per cent and 7 per cent, in 1938 63 per cent and 8 per cent. Following are given as the figures on Finnish exports and the imports by the U. S. from Europe.

Hammermill Agents Hold 28th Conference

Representative Paper Merchants From All Over the Country Inspect New Equipment and Methods Now In Use At Mill of Hammermill Paper Co., At Erie, Pa. — Sales and Advertising Plans For Coming Year.

New manufacturing equipment and methods now in use at the Hammermill Paper Company were observed by Hammermill Agents at first hand on August 23, 24 and 25 at Erie, Pa. The occasion was the Twenty-eighth Annual Conference between Hammermill officials and the mill's agent-distributors. One hundred and fifteen merchants were present, representing houses located in all sections of the country.

Inspect Improvements

As part of the three-day meeting, chartered buses picked up groups of visitors at the Kahkwa Country Club and transported them to the mill where guides pointed out interesting new developments in Hammermill's constant program of mill improvement and modernization. This program has entailed the spending of several million dollars in the past few years.

Hammermill sales and advertising plans for the coming year took up a big share of the program of the two business sessions at the Kahkwa Club, Thursday and Friday, August 24 and 25. Norman W. Wilson, first vice president and general manager of Hammermill, opened the meetings with an address of welcome and presided at both sessions.

Highlights of the meeting were talks by Representative Bruce Barton of New York and Dr. Julius Klein, former assistant secretary of Commerce. Mr. Barton gave an enlightening description of present European and domestic political situations. Dr. Klein spoke on today's business outlook.

Donald S. Leslie, vice president and assistant general manager of Hammermill, outlined the mill's efforts to keep its papers outstanding in quality and mentioned recent developments in the Hammermill program of keeping its equipment and manufacturing methods up to the minute. Harrison R. Baldwin, Hammermill vice president in charge of sales, showed sales charts and spoke about sales activities. Mr. Baldwin conducted the detailed business of the meeting.

A. E. Frampton Speaks on Advertising

At the Friday session, A. Ellis Frampton, advertising manager and assistant general sales manager of Hammermill, showed displays of 1939 Hammermill magazine advertising and direct sampling material. Mr. Frampton pointed out the value of this advertising support to the merchants' salesmen's efforts. J. Fred Wuenschel, district sales manager for the Pacific Coast, brought greetings from Grays Harbor Pulp and Paper Company, Hoquiam, Wash., and spoke of sales activities at that mill. G. P. Bothwell of Hammermill Sales Department outlined special sales activities to be held this fall.

E. V. Johnson, first vice president and general manager of United States Envelope Company, Springfield, Mass., reviewed sales trends of Hammermill Bond Envelopes and the sales possibilities of this line.

Committee Members Present

The business program of the two-day session was discussed and planned by the Agents' Advisory Committee and mill officials who met for luncheon and an afternoon meeting at Weigelia Lodge, the country home of Norman Wilson, on Wednesday, August 23. Members of the committee present were: E. P. Magel, chairman, Crescent Paper Company, Indianapolis,

PICTURE TAKEN AT THE 28TH ANNUAL CONFERENCE OF THE AGENTS

Ind.; W. N. Stetson, Jr., Storrs & Bement Company, Boston, Mass.; F. P. Leslie, The John Leslie Paper Company, Minneapolis, Minn.; J. P. Cunningham, Bradner Smith & Co., Chicago, Ill.; H. T. Newell, Jackson Paper Company, Jackson, Miss.; N. K. Woodward, Midwestern Paper Company, Kansas City, Mo.; W. N. Schaefer, R. P. Andrews Paper Company, Washington, D. C.; H. F. Petrequin, Petrequin Paper Co., Cleveland, Ohio; L. A. Colton, Zellerbach Paper Co., San Francisco, Cal.

Members of the Agents' Advertising Committee met with mill advertising men at dinner August 25. Members of the committee present were: L. V. Mulnix, Carpenter Paper Company, Grand Rapids, Mich.; Douglas Warner, O. F. H. Warner & Co., Inc., Baltimore, Md.; P. W. Eason, Lathrop Paper Co., New York, New York; C. M. Yates, The Dudley Paper Co., Lansing, Mich.; F. P. Leslie, the John Leslie Paper Co., Minneapolis, Minn.; J. H. Brewer, Storrs & Bement Co., Boston, Mass.

To replace members whose terms have expired, the agents elected the following men to the advisory committee: A. W. Green, Green & Low Paper Company, New York; George S. Clerk, Hudson Valley Paper Company, Albany, N. Y.; T. H. Epes, Epes-Fitzgerald Paper Co., Richmond, Va. Mr. F. P. Leslie was elected chairman of the committee for the coming year.

New members elected to the Agents' Advertising Committee are: H. G. Boyer, Caskie Paper Company, Charlotte; Ormond Freile, Paper Merchants, Inc., Philadelphia.

Business Sessions

The business sessions of the conference were held at the Kahkwa Club, Thursday and Friday mornings. The afternoons were given over to trips through Hammermill, golf, and other competitive games.

A beautiful Mexican automobile lap robe was presented for a drawing by mill men by Elwin Walker of Walker-Goulard-Plehn Company, New York, Hammermill export agents for Latin America. This was won by M. M. Davis.

The E. R. Behrend Golf Trophy was won by B. E. Reeves of The Alling & Cory Company, Rochester. This makes the second time Mr. Reeves has won the trophy. The Roger Brooks Taft Memorial Trophy, a gold putter put up by the agents, was also won by Mr. Reeves.

Two sets of attractive prizes were offered for the sport events—one group put up by the Mill for the merchants' men and the other put by the merchants' men for competition by Mill's representatives.

Those In Attendance

The following attended the conference:

Herbert S. Kratz, Martin L. Kratz and Clarence Briggs, the Alling & Cory Company, Buffalo, N. Y.; K. R. Reid, the Alling & Cory Company, Cleveland, Ohio; H. Kenneth Weed, the Alling & Cory Company, New York, N. Y.; W. J. Shaw and Josef H. Buerger, the Alling & Cory Company, Pittsburgh, Pa.; R. M. Harris, B. E. Reeves and H. L. Austin, the Alling & Cory Company, Rochester, N. Y.; William N. Schaefer, R. P. Andrews Paper Company, Washington, D. C.; B. R. Moore, Andrews Paper House of York, York, Pa.; M. Kiesewetter, Antietam Paper Company, Inc., Hagerstown, Md.

W. M. Baxter, Jr., the Baxter Paper Company, Inc., Baltimore, Md.; C. S. Lafferty and R. L. Tillman, Beacon Paper Company, St. Louis, Mo.; G. A. Naumann, R. W. Roehm and Reeves Porter, Beecher, Peck & Lewis, Detroit, Mich.; H. L. Young, Beecher, Peck & Lewis, Flint, Mich.; Theodore Greenebaum, Beekman Paper and Card Company, Inc., New York, N. Y.; L. A. Ramaker, the Bouer Paper Company, Milwaukee, Wis.; Roscoe Taylor, Butler Paper Company, Inc., Fort Wayne, Ind.; Byron Gaines, the Capital City Paper Company, Springfield, Ill.

A. C. Nelson the John Boshart Paper Company, Duluth, Minn.; L. V. Mulnix, Carpenter Paper Company, Grand Rapids, Mich.; Dewey A. Hoadley, Carpenter Paper Company, Omaha, Neb.; C. A. Esty, Carter, Rice & Co., Boston, Mass.; Hugh G. Boyer, Caskie Paper Co., Inc., Charlotte, N. C.

G. E. Caskie, Jr., Caskie Paper Company, Inc.,

E AGENTS E HAMMERMILL PAPER COMPANY, AT ERIE, PA., AUGUST 24-25, 1939

Lynchburg, Va.; A. M. Miller, the Central Ohio Paper Company, Columbus, Ohio; Warren G. Glass, the Central Ohio Paper Company, Toledo, Ohio; W. N. Gillett, Chicago Paper Company, Chicago, Ill.; E. P. Magel and Carl Rusie, Crescent Paper Company, Indianapolis, Ind.; F. Dana Payne and J. M. Knablein, the Daka Paper Company, Erie, Pa.; A. L. Schneider and John Schneider, the Diem & Wing Paper Company, Cincinnati, Ohio; C. M. Yates, the Dudley Paper Company, Lansing, Mich.; John Jennings, the Dudley Paper Company, Lansing, Mich.

George J. Kuebel, Henry Wuenschel, George J. Kuebel, Jr., and Carl Beddows, Durico Paper Company, Erie, Pa.; T. H. Epes, Epes-Fitzgerald Paper Co., Inc., Richmond, Va.; Merton C. Flemmings, Charles A. Esty Paper Company, Div., Worcester, Mass.; John J. Dorsey, F. A. Flinn, Inc., New York, N. Y.; A. W. Green, Green & Low Paper Company, Inc., New York, N. Y.; Willard J. Blake, Holland Paper Company, Inc., Buffalo, N. Y.; Sidney T. Jones, George S. Clerk and John B. Binley, Hudson Valley Paper Company, Albany, N. Y.

E. A. Damhorst, Irwin Paper Company, Quincy, Ill.; H. T. Newell, Jackson Paper Company, Jackson, Miss.; W. P. Beene, Kansas City Paper House Div., Carpenter Paper Company, Kansas City, Mo.; P. W. Eason, Lathrop Paper Company, Inc., New York, N. Y.; Thomas S. Lathrop, Lathrop Paper Company, Inc., New York, N. Y.; Simon Walter, Lehigh Valley Paper House, Div., S. Walter, Inc., Allentown, Pa.; Eugene Parks Lehigh Valley Paper House Div., S. Walter, Inc., Allentown, Pa.

Frank P. Leslie, the John Leslie Paper Company, Minneapolis, Minn.; D. J. Werner and Harry Beckman, Henry Lindenmeyr & Sons, New York, N. Y.; Robert M. Hughes and James P. O'Connor, Megargee Brothers, Scranton, Pa.; N. K. Woodward, Midwestern Paper Company, Kansas City, Mo. and Topeka, Kan.; F. P. Appleton, Miller & Wright Paper Company, New York, N. Y.; Robert Schmidt, Miller A. Wright Paper Company, New York, N. Y.; Robert S. Johnston, Old Dominion Paper Company, Norfolk, Va.; A. D. Cleveland, E. C. Palmer & Co., Ltd., New Orleans, La.; Charles M. Bleke, The Paper Craft Company, St. Louis, Mo.

W. Predmore and Ormond Freile, Paper Merchants, Inc., Philadelphia, Pa.; H. F. Petrequin and E. A. Petrequin, The Petrequin Paper Company, Cleveland, Ohio; Norman Fort, Jr., the Thomas W. Price Company, Philadelphia, Pa.; W. A. Rhodes, S. P. Richards Paper Company, Atlanta, Ga.; Ernest C. Mead, Richmond Paper Company, Inc., Richmond, Va.; J. P. Cunningham, George Krisinger and A. R. Martin, Bradner Smith & Co., Chicago, Ill.; R. S. Tyler, and James Bothwell, Southeastern Paper Company, Louisville, Ky.

G. R. Likins, Springfield Paper Company, Springfield, Mo.; W. N. Stetson, Jr., Storrs & Bement Company, Boston, Mass.; John H. Brewer, Storrs & Bement Company, Boston, Mass.; John D. Swigart and E. R. Carpenter, Swigart Paper Company, Chicago, Ill.; Virgil Buzard, Tayloe Paper Company of Oklahoma, Tulsa, Okla.; J. Nacht, Union Card and Paper Company, New York, N. Y.; Stuart Caplan, Union Card and Paper Company, New York, N. Y.

C. R. Smith, Van Reed Paper Company, Reading, Pa.; Stuart H. Richeson, Virginia Paper Company, Inc., Jacksonville, Fla.; C. A. O'Neill, D. L. Ward Company, Philadelphia, Pa.; Douglas Warner, O. F. H. Warner & Co., Inc., Baltimore, Md.; E. L. Walters, Western Newspaper Union, Omaha, Neb.; Bert J. Dray, Zellerbach Paper Company, Los Angeles, Calif.; Louis A. Colton, Zellerbach Paper Company, San Francisco, Calif.; F. L. Fisher, Central States Envelope Company, Indianapolis, Ind.; E. L. Wood, P. P. Kellogg & Co., Div., Springfield, Mass.; E. V. Johnson, United States Envelope Company, Springfield, Mass.; Robert L. Allison, United States Envelope Company, Springfield, Mass.; Bruce Barton, C. J. Babcock, S. A. Harned, E. L. Bigelow and Harry Payne, Batten, Barton, Durstine & Osborn, Inc., New York, N. Y.

Elwin Walker, J. Borrell and Donald Walker, Walker, Goulard, Plehn Co., Inc., New York, N. Y.; H. E. Allen and C. J. Voneman, the Dobeckmun Company, Cleveland, Ohio.

Huyck & Son Experiment With Wool

[FROM OUR REGULAR CORRESPONDENT]

RENSSELAER, N. Y., August 28, 1939—The experiment in sheep herding conducted by the mills of F. C. Huyck & Sons has proven a profitable industry and as a result the State of New York may soon add sheep raising for wool production on a large scale. The farm conducted by the concern in Livingston and Ontario Counties, a few miles from Springwater, is nearing the second year of its existence, having been established in the fall of 1937 to determine whether typical hill land of the state could be used profitably for large scale production of lambs and wool. It is to be operated for a period of ten years. The land lies at an elevation of about 2,000 feet and had largely gone out of cultivation. A special study is to be made of the production of a type of wool that is somewhat coarser and longer in staple than is produced by the average flock of western sheep in this state.

The farm is financed entirely by F. C. Huyck & Sons and the investigation is supervised by an operating committee consisting of Prof. F. B. Morrison, chairman, and Profs. John P. Wilman and E. L. Worthen, all of Cornell University; R. W. Pease, county agricultural agent, Canadaigua; N. F. Smith, county agricultural agent, Mount Morris; Otto K. Landon, in charge of the experimental sheep farm, and George L. Brown, purchasing agent of F. C. Huyck & Sons.

Imperial Paper & Color Corp. Elect

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., August 28, 1939—The Imperial Paper and Color Corporation held its annual meeting of stockholders this week at which directors and officers were chosen. The directors elected include A. F. Brown, A. S. Frazier, D. H. Cowles, Louis P. Brown, G. S. Knapp, G. F. Mellen, J. H. Pearsall, J. E. Singleton, M. C. Wilmarth, William Rohe and A L. Emerson. The directors elected Karl H. McBride to serve as president, D. H. Cowles, vice president, J. H. Pearsall, treasurer, and M. C. Wilmarth, secretary. The report of the treasurer showed net profits for the year amounting to $350,-168.16 compared with $380,200.85 for the previous year. Plant operations are under the supervision of A. S. Frazier, general supervisor. A. F. Brown is general manager of the color and chemical division while G. F. Mellen is in charge of the wall paper division.

Pulp and Paper Unions of Ontario Meet

Business Sessions of Convention of Pulp and Paper Mills Unions of Northern Ontario Well Attended — New Abitibi Plan Announced — Abitibi Earns $148,750 Before Charges — Provincial Paper Ltd. Reports Gains.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 28, 1939—A convention of pulp and paper mill unions of Northern Ontario was held at Dryden, Ont., on August 24 and 25. The business sessions which were well attended wound up with a successful banquet. The officers of the Northern Ontario Council of Pulp and Paper Makers Unions as the organization is known, are Thomas Butler, of Provincial Paper, Limited, Port Arthur, Ont., chairman, Sam Ashton, Thunder Bay Paper Company, Limited, Port Arthur, first vice president; Harry Chase, Provincial Paper, Limited, second vice chairman; Howard Grattan, Thunder Bay Paper Company, secretary-treasurer. Among those present from Port Arthur and Fort William were C. Michaels, of the Great Lake Paper Company, Albert E. Nicklin, who represented the pulp makers, Wilbert Laurion and George Polhill, representing the paper makers; R. H. Garrett, L. Langevin and W. J. Ollson, of the Abitibi Power and Paper Company, Hon. Peter Heenan, Minister of Lands and Forests for Ontario was invited to be present and deliver an address on the policy of the Ontario government in respect to reforestation.

New Abitibi Plan Announced

The new Abitibi Power and Paper Company committee comprising Hon. Howard Ferguson, Thomas Bradshaw and Hon. Gordon W. Scott, is circularizing all protective committees with a new plan for reorganization of the company under the Dominion Companies Act and Companies Creditors Arrangement Act. The plan which has been discussed with important interests, follows the bondholders protective plan by converting the $48,267,000 five per cent first mortgage bonds and interests into shares but suggests a junior class of share for equity holders, which, according to the receiver's balance sheet, have a theoretical equity of some $50,000,000.

Bondholders shares would have a par value equal to amount of their full claim and carry five per cent dividend. Junior shares would be entitled to interest after the five per cent was paid to senior shares and would be of no par value. H. J. Symington, Montreal, who is chairman of the bondholders protective committee, said that the proposal advanced by the newly formed committee have not yet been considered by his committee. In the meantime, he gave no hint regarding any change in the plans of his committee which has on deposit now an amount of bonds far in excess of that required for taking proceedings looking toward judicial sale.

Abitibi Earns $148,750 Before Charges

The earnings of the Abitibi Power and Paper Company, Limited, Toronto, prior to charges for depreciation of $148,750 and bond interest (including interest on overdue and unpaid interest) of $276,530, amounted to $191,632, as compared on a similar basis with $198,330 in June, 1939, and with $256,843 in July, 1938. Shipments in July amounted to 22,199 tons, compared with 24,239 in June, 1939, and 22,960 in July, 1938. Indications are that the shipments of newsprint in August will be 24,500. Shipments of sulphite pulp in July amounted to 2,893 tons as compared with 2,863 in June, 1939, and 2,667 in July, 1938. Indications are that the present shipments of sulphite pulp in August will be about 3,100 tons. The earnings, prior to bond interest and depreciation for the first seven months of 1939, amounted to $1,242,491, compared with $1,378,053 and $2,620,631 for the corresponding periods of 1938 and 1939 respectively.

Provincial Paper Reports Moderate Gains

The tonnage and earnings of Provincial Paper, Limited, Toronto, so far this year are running moderately ahead of the same period last year. Demand has been well maintained and the outlook for the remainder of the year barring war is hopeful. In the latter case shipments would be hit immediately but, based on the precedent of the past war, would improve as the conflict progressed. Net profits in 1938 totalled $242,202, equivalent to $6.92 on the seven per cent preference shares of $100 par value, compared with $340,942 in 1937 and $9.74 respectively. The company failed only by a small amount to earn its preferred dividends in 1938 and a small increase in profits would see the preferred dividend earned in the current year.

Scott Gets New Insurance

A new group insurance plan putting over $1,625,000 of new insurance in force was announced by D. B. Wilkinson, personnel director of Scott Paper Company, Chester, Pa. on August 23, 1939. The plan which is another tangible expression of the company's appreciation of the cooperation and service of its employees has been accepted by over 80 per cent of the eligible members of the organization and is in addition to the $1,926,000 of group insurance which has been in force through the Employees' Beneficial Association for the last twelve years.

Employees may purchase under the new program an amount of insurance based on weekly earnings. The company pays the entire premium on the first $500 of insurance and a substantial portion of the premium on the balance of the insurance to which the employee subscribes. The insurance ranges from a minimum of $500 to a maximum of $7500. In addition the company will pay the entire cost of the administration of the plan.

The new plan, which is on a payroll deduction basis, offers a convenient low cost means of providing increased protection for the families of employees and in event of death it specifies a common sense method of spreading the payment of the principal amount of insurance over a twenty-four month period.

Work On Addition to Marathon Plant Started

Foundation Laid For Large Addition To Menasha Products Division of Marathon Paper Mills—Wolf River Reservoir Project Delayed — Institute of Paper Chemistry Holds Meeting Sept. 12 — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 28, 1939—Pouring of concrete has been started for the footings of the large addition to the Menasha Products division plant of the Marathon Paper Mills Company at Menasha, Wis. Buildings on the site have been razed, and a coffer dam has been built on the Fox River frontage, so the work will now move rapidly. Excavation has been completed.

The building will be of steel and brick construction, and will consist of two stories and basement. It will house the wax paper department, as well as a large part of the offices. Estimated cost of the work is $100,000.

Offices of five departments have been moved temporarily to the St. Mary school building at Menasha, because of the construction work.

Wolf River Reservoir Project Delayed

Although reconsideration by the Wisconsin Assembly made it appear that the much buffeted Wolf River reservoir project at Lily, Wis. would now be possible through the granting of a charter to the Wolf River Reservoir Company, the venture has struck another snag. Assemblyman Mark Catlin, Jr., of Appleton, Wis., one of the cities benefiting from increased water supply for the Fox River, proposed an amendment restricting location of the proposed dam to a site on the Wolf River at Leeman, Wis. The vote was 48 to 39 to accept the amendment.

The Lily site is above the Menominee Indian Reservation, noted for its scenery and trout fishing, and the lands to be used would have been in a cheap cut-over area. Charles Seaborne, chief engineer of the Thilmany Pulp and Paper Company, had led opposition to the Leeman site because it involves purchase of expensive farm land to provide area for the reservoir. He told a legislative committee the Leeman reservoir would cost more than the potential benefits would warrant.

Attempts will still be made to reconsider the amendment and pass the bill in its original form specifying the Lily site.

The Legislature was informed of the present plight of the paper mills, whose operations have been hampered by low water in the Fox River, and by the presence of such large quantities of algae the filters became clogged. Arguments that the move was a "power and water stealing scheme" seemed to hold ground, however, causing the unfavorable vote.

Occupants Wanted for Abandoned Mills

With excavating and channel building nearing completion, pouring of concrete has been started for foundations and the dam of the new municipal power plant on the City of Kaukauna, Wis., on the site of the former Patten Paper Company mill flowage. New walls will be built connecting the old channel to the new powerhouse, and a heavy concrete facing will be applied to the old stone wall.

Meanwhile, the City of Kaukauna is seeking industries to occupy the buildings of the former Patten mill, and also the abandoned mill of the Union Bag and Paper Company. A booklet, "Industrial Kaukauna," has been prepared and is being widely circulated. It calls attention to the availability of 100,000 square feet of manufacturing space and 41,000 square feet of warehouse space in the buildings, with railroad sidings and canal shipping facilities available.

The booklet announces that Thilmany Pulp and Paper Company, established in 1890, is the city's leading industry and employs 900 persons, or better than one person in eight of the city's population. Badger Tissue Mills is listed as employing 35, and was established in 1913.

Labor Board Issues Election Order

Following a Wisconsin Labor Board hearing at Neenah, Wis., last week, an order has been issued that elections will be held to determine bargaining agents for the employees of the Lakeview and Badger-Globe mills of the Kimberly-Clark Corporation. The election at Lakeview will be held September 7, and at the Badger-Globe September 8. Outcome of the voting will enable the Labor Board to determine whether the Lakeview Independent Union will represent the employees in bargaining.

Paper Chemistry To Hold Membership Meeting

The annual membership meeting of the Institute of Paper Chemistry, Appleton, Wis., will be held at the Institute Tuesday, September 12, it was announced last week. Four trustees will be elected. Those whose terms expire are: Harry P. Carruth, Brown Paper Company, Portland, Ore.; Ernst Mahler, chairman of the board and executive vice-president of Kimberly-Clark Corporation, Neenah, Wis.; George H. Mead, The Mead Corporation, Chillicothe, Ohio, and Hugh Strange, John Strange Paper Company, Menasha, Wis.

Two staff members, Dr. Harry F. Lewis, dean, and John H. Graff, of the research staff, will attend the fall meeting of the Technical Association of the Pulp and Paper Industry at Syracuse, N. Y., September 12 to 14. Dr. Lewis also plans to attend a meeting of the American Chemical Society in New York prior to the TAPPI meeting.

Robert F. Rogers, special lecturer in wood technology, and Dr. Irving Isenberg and Gilbert Barnes of the Institute staff, will accompany 15 first-year students on a ten-day sojourn in the woods September 11 to 20, prior to opening of Institute classes. They will take a field course in wood technology at Filibert Roth Camp of the University of Michigan at Beachwood, Mich. Inspection trips will be made into the forests and to sawmills and lumber yards.

Outings of Paper Mills Well Attended

On the picnic schedule was the annual outing of employees of the Nekoosa-Edwards Paper Company

(Continued on page 21)

Financial News of Pulp and Paper Industry

American Writing Reports Profit—Bagley & Sewall Ask Lower Assessment — Increased Income For Crown Zellerbach — Paraffine Earnings Rise—Gaylord Declares Dividend—Continental - Diamond Shows Profit.

New York Stock Exchange
High, Low and Last for the Week Ending Aug. 30, 1939

	High	Low	Last
A. P. W.	1⅝	1⅝	1⅝
Armstrong Cork Co.	39½	37¼	39¼
Celotex Corp.	10⅜	7⅞	9⅝
Celotex Corp., pf.	64	64	64
Certain-Teed Products Corp.	7	5⅛	6⅝
Certain-Teed Products Corp., pf.	26½	22⅞	26½
Champion Paper & Fibre Co.	18	17	18
Champion Paper & Fibre Co., pf.	100	100	100
Congoleum-Nairn Co.	23¾	22	23¾
Container Corp. of America	10¼	9⅛	10¼
Continental-Diamond Fibre Co.	6	5	6
Crown-Zellerbach Co.	10⅜	9¼	10⅛
Crown-Zellerbach Co., pf.	80	78	78
Flintkote Co.	19	15½	17¾
Robert Gair	2⅛	2⅛	2⅛
Robert Gair, pf.	7¾	7¾	7¾
International Paper & Power	8	6¾	7¾
International Paper & Power, pf.	30½	25¼	28½
Johns-Manville Corp.	67¼	65	65½
Johns-Manville Corp., pf.	122	122	122
Kimberly-Clark Corp.	27½	27	27½
MacAndrews & Forbes	33	33	33
MacAndrews & Forbes, pf.	132½	132½	132½
Masonite Corp.	39½	36	39
Mead Corp.	7⅝	6⅜	7⅛
Mead Corp., pf.	39⅞	39⅞	39⅞
Paraffine Companies, Inc.	40½	39½	39½
Ruberoid Co.	19¼	17½	19
Scott Paper Co.	50	48⅞	50
Scott Paper Co., pf.	114⅞	114¼	114¼
Sutherland Paper Co.	25	24	25
Union Bag & Paper Corp.	7⅜	6	7⅛
United Paperboard Co.	3⅞	3⅞	3⅞
U. S. Gypsum Co.	83½	79	81½
U. S. Gypsum Co., pf.	175½	174¾	174¾

New York Curb Exchange
High, Low and Last for the Week Ending Aug. 30, 1939

	High	Low	Last
American Box Board Co.	5¾	5½	5¾
Brown Co., pf.	9¼	8	9¼
St. Regis Paper Co.	1⅞	1¾	1¾
St. Regis Paper Co., pf.	39	39	39
Taggart Corp.	2¾	2¾	2¾

American Writing Earns $36,447

American Writing Paper Corporation for the six months to June 30 report a net profit of $36,447, after setting aside $109,342 to provide for interest on general mortgage bonds. In corresponding period of 1938 the company had a loss of $84,756 before providing for interest on general mortgage bonds. June quarter: Net profit, $10,126, after setting aside $30,380 to provide for interest on general mortgage bonds, compared with a loss of $62,511 in June quarter last year before providing for interest on these bonds. Under the terms of the indenture of the bonds referred to it is provided that until Dec. 31, 1940 (after which period the rate of 6 per cent will become fixed), 75 per cent of the available income be applied toward interest on these bonds to a maximum of 6 per cent thereon. The sum accrued thus far for interest on these bonds is, of course, subject to additions or deductions dependent upon the results of operations of the company for the balance of the year.

Ask Lower Tax Assessment

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., August 28, 1939—City authorities here have been requested by the new owner of the Bagley & Sewall Company to lower the $680,310 assessment on the property. As a result of the request the city board of appraisers inspected the property last week and its findings will be presented to the board of review when it meets on September 12. The owner, Abe Cooper, has not set any specific amount he wishes the assessment reduced to but he has asked the council to give whatever relief is possible. When he assumed ownership of the company it is understood that he paid approximately $370,000, that sum covering the purchase price of the properties and the obligations of the company. It is understood that he will make formal application for the reduction with the city assessors before August 31, the last day to protest against assessments. His application will then be presented to the board of review if the assessors are unable to agree on a fair assessment.

Crown Zellerbach Nets $1,729,874

A net profit of $1,729,874 for the three months ended on July 31 was reported by the Crown Zellerbach Corporation and its subsidiaries. This was after all charges for depreciation, depletion, interest and taxes, and after deducting minority stockholders' proportion of the net profits of Pacific Mills, Ltd.

After providing for dividend requirements on the 529,655 shares of $5 cumulative preferred stock, the net profits is equivalent to 47 cents a share on 2,261,199 common shares.

In the corresponding quarter of last year the net profit was $970,055, or 13 cents a common share.

Paraffine Earns $1,427,897

Paraffine Companies, Inc., for the year to June 30 report a net profit of $1,427,897, equal, after deducting 4 per cent cumulative convertible preferred dividend requirements, to $2.80 each on 476,062 no par common shares, against $1,255,001, or $2.44 a common share in preceding year. Three months to June 30: Net profit, $390,836, or 77 cents a common share, compared with $238,811, or 45 cents a common share last year. Current assets on June 30 last, amounted to $7,697,903 with cash of $954,239 and inventories of $3,762,367, while current liabilities totaled $929,308.

Gaylord Declares Dividend

The Gaylord Container Corporation declared a dividend of 10 cents a share on the common stock, payable September 15 to stock of record September 5. Previous payment was 25 cents a share made on June 15.

Continental Fibre Nets $26,889

Continental-Diamond Fibre Company for the six months to June 30 reports a net profit of $26,889, contrasted with net loss last year of $437,126. June quarter: Net profit, $9,580, contrasted with loss of $198,371 last year.

Syracuse TAPPI Convention Entertainment

Golf down the sportiest fairways of Central New York. Cool swimming and boating at Historic Oneida Lake. Tours of the Finger Lakes district in its late-summer splendor. Skeet shooting. Gay bridge parties and luncheons for the ladies. Dancing to the music of Mal Hallett and his orchestra. Floor shows and special stunts. Spirited stag luncheons.

All this—topped off with a rip-roaring clambake that only upstate New Yorkers can conjure—goes into the picture of TAPPI's big convention, September 11-14, when more than 1,000 members and friends of the organization gather in Syracuse, N. Y.

R. F. HUNTLEY
Sealright Company, Inc.
Chairman, Entertainment Committee

R. F. Huntley of the Sealright Company, Inc. of Fulton, N. Y. heads up the general entertainment program. His assistant, in line with women's activities, will be Mrs. H. M. Day of Syracuse Chamber of Commerce. Sponsorship of the convention is accredited to the Empire State Section of the association.

MRS. H. M. DAY
Chairman, Ladies' Program Committee

The afternoon and evening of September 11 will be devoted to registration and general get-together in the lobby of convention headquarters, Hotel Syracuse. Homer M. Rice of Watertown will direct this activity.

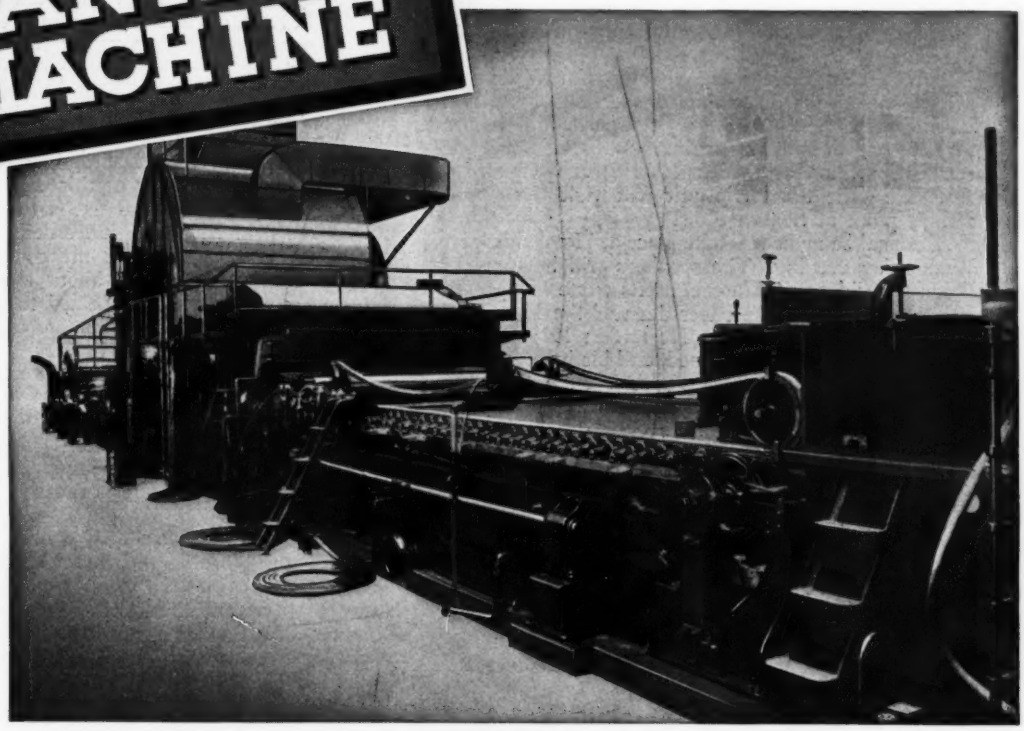
A stag luncheon, Tuesday noon, marks the first scheduled social event. R. F. Huntley will extend welcome in behalf of the Empire State Section. Fred C. Clark, president of the national organization, will speak for TAPPI at large. The speaker will be Samuel N. Spring, Dean of the New York State College of Forestry, located at Syracuse. Dean Spring is a speaker of keen wit and humor. His perspective of the industry is bound to result in original slant.

The evening event includes an informal dinner in the grand ballroom of Hotel Syracuse, featured with a floor show. Francis D. Bowman, advertising manager of the Carborundum Company will be master

GEORGE N. OSTRANDER
Vice-President, Finch, Pruyn & Company
Advisory Committeeman

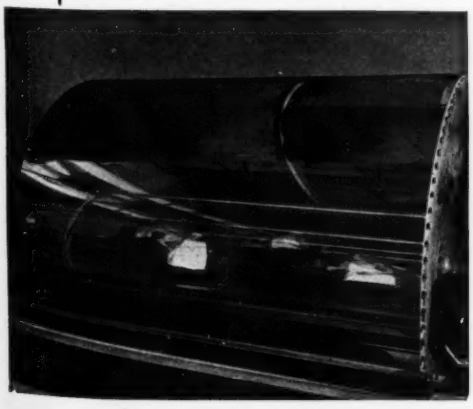
R. K. FERGUSON
President, St. Regis Paper Company
Advisory Committeeman

THE Beloit YANKEE MACHINE



● **The Beloit Yankee Machine furnishes an economical easy means of diversification. No other machine has the all-around adaptability to fit the needs of mills making specialty papers, both light and heavy weights.**

The machine is provided with all the latest features: Removable Fourdrinier ...High Speed Super Shake...Suction Rolls...High Pressure Dryer...Hypoid Drive, etc.



Beloit has developed a special alloy metal and special grinding and polishing process to produce the close grained, hard mirror finish shown in this photograph. This is a result of Beloit's many years of experience in building practically all the Yankee machines in this country.

Beloit has also recently developed a high pressure Yankee dryer to meet the demand for maximum production.

THE BELOIT WAY IS THE MODERN WAY

BELOIT IRON WORKS • BELOIT • WIS.

of ceremonies. Mal Hallett and his orchestra will provide dance music.

Tuesday's special events for women will include luncheon at the world-famous Krebs in Skaneateles, a tour of scenic Finger Lake country, a visit to one of the nation's outstanding pottery concerns. They will join with the men in the evening festivities.

Wednesday marks another stag luncheon. Frank Lovejoy, nationally known speaker and sales executive of the Socony-Vacuum Oil Company, will address his listeners on "The Technician's Place in Modern Marketing." His presentation is always dynamic.

Three technical visits are scheduled for Wednesday afternoon. Two will combine inspection of the New York State College of Forestry's papermaking laboratory, thence to split up respectively to visit the Carrier Corporation or the Crucible Steel Company of America. The third trip-unit will visit the Goulds Pumps plant at Seneca Falls.

A formal banquet will take place at Hotel Syracuse, Wednesday evening. The speakers will be Hugh P. Baker, president of Massachusetts State College. In 1912, Dr. Baker was pioneer dean of the New York State College of Forestry. He left in 1917 to serve with the A. E. F. He returned, and his impetus lifted the school to even greater prestige. Five years ago he took the president's chair at Massachusetts State. His topic will be "Maintaining Ethical Standards in Business as Applied to the Paper Industry." The Syracuse American Legion Chorus of 55, a national prize-winner, will sing. Mal Hallett and his orchestra will play for dancing. Carl B. Martin, vice president of the St. Regis Paper Company will be toastmaster at the evening's banquet.

The women's recreational features for Wednesday include a golf tournament starting at 8:30 A.M. followed by luncheon at the Bellevue Country Club, and an afternoon optional to bridge or other features.

Entertainment reaches a high point on Thursday when members will have an early-afternoon choice between a golf tournament at the Syracuse Yacht and Country Club or guest-participation in the Central New York Open Championships at the Onondaga Trap and Skeet Club. Five o'clock will bring all groups together at the Yacht Club to be guests of the Solvay Sales Company at an old fashioned upstate New York clambake. The Solvay concern has been working for weeks to perfect the details of this gala affair. They warn guests to come prepared with extra-expansion belts, for they'll need 'em!

Plan for Waste Dealers Convention

Plans for the fall convention of the National Association of Waste Material Dealers, Inc., which is to be held at the Lord Baltimore Hotel, Baltimore, Md. on October 15, 16 and 17 are rapidly developing according to an announcement issued recently, from the headquarters of the association in the Times Building, New York.

It is stated that the convention will be in every way a worthy successor to the fall convention put on last year in San Francisco. A committee of Baltimore members made up of Joseph Schapiro, chairman, Emanuel Hettleman, Jacob S. Shapiro, Louis Silverstein and Joseph Viener has set out to make the coming convention an exceptionally attractive one both from the standpoint of entertainment and important and interesting business sessions.

Indianapolis Demand Expands

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 28, 1939—Paper demand in this territory continues to expand slightly and the trade is convinced the summer dull period, which was not as severe as in other years, has ended definitely. Prices in all lines are holding firm and there appear to be no disturbing factors in the situation at the present time. Credit conditions are better than they have been for some time and executives here believe the trade will go into the fall season with every prospect of a better fall than last year.

Demand for book and ledger paper continues good and likely will increase within the next month. Word from the larger printers and advertising agencies is that quite a bit more direct by mail advertising will be done this fall than last and already quotations are being made for some of this paper.

The newsprint demand is virtually unchanged. Prices are firm and some more demand is expected from the rural papers with the coming of the fall season. Linage is running about even with a year ago and any increase is expected to come from the domestic advertisers. Foreign advertising has held good during the entire summer.

While there was a slight lull in call for building papers and roofing during the last of July and the first of this month, business perked up last week and everybody is looking forward to a large fall demand.

The container trade is moving along in good shape. While production is not at capacity by any means, manufacturers report a slight expansion in the demand base. Production is being nicely balanced with demand and there is no likelihood of the market being glutted. Tissues have a good demand and summer specialties continue to sell readily. Buyers, however, are becoming choicy and it is expected the season will end next week with the passing of Labor Day.

Waste paper demand appears to be better, according to local executives. More interest is being evidenced at the mills, particularly for better grades of paper and rags.

Lone Star Paper Co. Formed

LONGVIEW, Tex., August 28, 1939—A wholesale paper house equipped to supply this section of East Texas with a large and varied stock of paper has been established here by the Lone Star Paper Company.

The new company, located at 506 North Third street, is owned and operated by Longview men. W. C. Hurst, Jr., will be in the office and his associate, P. H. Diffenbaugh, will take care of Longview trade. Mr. Hurst was born and reared in Longview and for the past few years has operated the Longview Concrete Products company. He will continue to give part of his time to that business.

Mr. Diffenbaugh, who has been in the wholesale paper business for 28 years, comes to Longview from Abiline where he established the Merchants' Paper company. He has been highly recommended by the firms with whom he has formerly been associated.

From five to seven hundred different items will be carried by the local paper company. This large stock will include stock wrapping papers, bags, soda cups, ice cream containers, Christmas wrappings and ribbons, paper boxes, and various other paper articles.

Obituary

Herbert W. Mason

Herbert W. Mason, 57, president and owner of the Curtis Paper Company, near Newark, Del., died of a heart attack yesterday morning at the home of Dr. and Mrs. Lee Cone Holt, Philadelphia Pike, Holly Oak.

Mr. Mason, whose home was at 401 Old Oak Road, Newark, was visiting at the Holt home when he became ill. Mrs. Holt is Mrs. Mason's sister.

Mr. Mason, cousin of the late Fiske Warren, Boston millionaire, who was one of the leading principals in the development of Arden and Ardentown, complained of feeling ill about four days ago. Two weeks ago he was injured in an automobile accident.

A member of a family of paper manufacturers, Mr. Mason had been president of the Curtis company since May 1926. Prior to that he was with the Dill and Collins Company, Philadelphia, paper manufacturers, and before that was treasurer of the S. D. Warren Company, Boston, Mass., paper manufacturers.

He was a member of the S. D. Warren family, which for years has been engaged in paper manufacturing.

Mr. Mason was a Harvard graduate and a member of the Harvard Club of New York. He had many interests here, chiefly along charitable and educational lines.

His widow, Mrs. Mildred N. Mason, and two children, Sarah Mason and Herbert Mason, of Newark, survive.

Charles H. Berstler

Charles Harvey Berstler, who helped to make the first paper ever manufactured in Downingtown, Pa., and who was the oldest resident of the town, passed away at his home, 40 West Lincoln Highway, in the borough, at 8.35 o'clock Saturday night.

He had been confined to his home with illness during the past four years. He was 90 years of age.

In his early youth he went to Downingtown and entered the employ of Frank P. Miller, who then operated a paper mill at the south edge of the borough. When Miller's paper mill was moved to another location in the borough, he remained with its successor, the Kerr Paper company, continuing in the service of operating the "beaters" until his retirement some years ago.

He is survived, besides his widow, by four sons and three daughters: Cheyney J. Berstler, Reading; Robert J. Berstler, Binghamton, N. Y.; Elsie J., wife of Raymond D. Renshaw, Coatesville; Phoebe L., wife of William B. Moore, Downington; A. Margaret, wife of Walter D. Orr, Thorndale; Charles H. Berstler, and Herbert H. Berstler, of Downingtown.

Funeral services were held Wednesday afternoon at 2 o'clock from the Towson funeral home, Downingtown. Interment was in Grove M. E. cemetery.

Charles N. McIntyre

Funeral services were conducted Wednesday for Charles N. McIntyre, 64, superintendent of McIntyre Brothers Paper Company, Inc., Fayetteville, N. Y., who died August 20, at his home in Fayetteville, ten days after suffering a heart attack. The funeral was held from the home, 119 North Mill Street and at the Church of the Immaculate Conception, Fayetteville, where a solemn high mass of requiem was celebrated. Burial was in Fayetteville.

Born in Lowville, Mr. McIntyre had been employed in paper manufacturing plants in Watertown and Northern New York villages several years before coming to Fayetteville about 26 years ago.

Surviving are his widow, Margaret Dundon McIntyre; a daughter, Miss Isabelle McIntyre; two sons, Clarence and John McIntyre, and a brother, W. E. McIntyre.

Mrs. George W. Mead

Mrs. George W. Mead, wife of the president of Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., passed away at 5 o'clock Thursday morning, August 24, at Island Home, the picturesque Mead estate on the Wisconsin River. She was 63 years old. Mrs. Mead had been in failing health for several months. Mr. and Mrs. Mead had returned earlier than usual from their winter home at Miami Beach, Fla., for a course of treatment in Chicago. While there she contracted pneumonia, causing complications from which she never completely recovered.

Funeral services were held Saturday afternoon, August 26, from the Congregational Church where she had been a prominent worker, and burial was made in Forest Hill Cemetery at Wisconsin Rapids.

Survivors, besides the widower, are two sons, Stanton W., Wisconsin Rapids; Walter L., Chicago, and a daughter, Emily Mead Baldwin of Wisconsin Rapids.

Jacob Metz

The funeral of Jacob Conrad Metz, 80, president of the Metz Paper Company of Pawtucket, R. I., was held Monday afternoon, August 21, at the funeral parlors of D. W. Bellows & Son. Rev. Walter B. Greene, pastor of Woodlawn Baptist Church, officiated. Burial was in Oak Grove cemetery.

Mr. Metz, resident of this city for the past 20 years, died at his home, 34 McAloon street, after an illness of four days. He retired from active participation in the affairs of the paper company several years ago. He was a member of Woodlawn Baptist Church and came here from Reading, Pa.

Major D. G. Robertson

TORONTO, Ont., August 28, 1939—Major D. Graham Robertson, paymaster of the Royal Hamilton Light Infantry Regiment and president of Buntin-Gillies, Limited, wholesale paper dealers, Hamilton, Ont. collapsed and died on August 24. He was forty-two years old and had not been in good health for some months. In December last he suffered a heart attack but had continued with his business affairs. He was conversing with an associate when the end came. He is survived by one brother and his mother. Major Robertson was a graduate of the University of Toronto and the Royal Military College, Kingston, and served overseas with the 32nd Battalion. He was awarded the Military Cross for bravery in action. On his return from France he joined the staff of Buntin Gillies firm and assumed the presidency in 1936.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Financing and Operation of Pulp and Paper Mills

General Construction News

St. Helens, Ore.—The St. Helens Pulp and Paper Company, manufacturer of kraft and other paper stocks, tissue papers, etc., has approved plans for new addition to mill, to be used for expansion in digester department. It will be one-story, reported to cost over $60,000 with equipment. Improvements also will be made in chip conveyor system at mill and fuel-handling system. General erection contract has been awarded to the George H. Buckler Company, Lewis Building, Portland, Ore., and work is scheduled to be placed under way at once.

Los Angeles, Calif.—The Schumacher Wall Board Corporation, 5721 South San Pedro street, Los Angeles, has begun work on initial unit of new plant on Firestone boulevard, South Gate industrial district, where tract of about 12 acres of land has been acquired, as previously reported in these columns, and will carry out erection by day labor, under direction of Leland S. Rosener, 233 Sansome street, San Francisco, Calif., consulting engineer. It will be one-story, totaling about 10,000 square feet of floor space. Closely following completion in the fall, other structures will be built, including two additional one-story manufacturing, boiler house, machine shop and miscellaneous buildings. New plant will be equipped for manufacture of wall board, plaster board and allied products, and is reported to cost approximately $1,000,000, with machinery. Mr. Rosener, engineer noted, has prepared plans for plant. R. H. Shainwald is president of company.

Erving, Mass.—The Erving Paper Mills, manufacturers of tissue, crepe and kindred paper stocks, waxed papers, etc., have awarded general contract to P. J. Kennedy & Co., 326 Appleton street, Holyoke, Mass., for new addition to mill in the Stoneville district, consisting of a third story on present two-story building, 64 x 80 feet. No estimate of cost announced. It will be used for expansion in production operations. Work is scheduled to be placed under way at once.

Coldwater, Mich.—The L. A. Darling Manufacturing Company, Bronson, Mich., manufacturer of cardboard and allied displays, paper models, etc., has concluded arrangements for the purchase of the former factory of the Caskey Manufacturing Company at Coldwater, and will remodel and equip for new branch plant, specializing in the production of paper and fiber display models of various kinds. Property will be taken over early in the fall and work placed under way. Plant is scheduled to be ready for operation by the close of the year.

Hudson Falls, N. Y.—The Union Bag and Paper Corporation, Woolworth Building, New York, N. Y., manufacturer of kraft paper bags and containers, has completed plans for new addition to branch mill at Hudson Falls, consisting of a two-story structure, about 100 x 100 feet, reported to cost over $65,000, with equipment. Erection will be carried out by day labor and superstructure will begin at once.

Rhinelander, Wis.—The Rhinelander Paper Company, manufacturer of glassine, greaseproof and allied paper stocks, has superstructure in progress for new addition to mill, previously referred to in these columns, and will complete the structure early in the fall. It will be two-story, 50 x 94 feet, and will be equipped in part for laboratory service and general operations. An award for roofing has been let to the E. D. Chase Company, Oshkosh, Wis. New structure is reported to cost close to $40,000, with equipment. C. R. Meyer & Sons Company, 50 State street, Oshkosh, has the general erection contract.

Grand Rapids, Mich.—The Pure-Kote Corporation, recently organized to manufacture a moisture-proof paper container for food products, etc., has leased a local building and will equip for production. It is expected to have plant ready for service at early date. New company is headed by Robert Ferguson and L. A. Geistert, both of Grand Rapids; and Kenneth Montigel, Alma, Mich.

New York, N. Y.—The Chic Container Corporation, recently formed with capital of 200 shares of stock, no par value, to manufacture and deal in paper boxes and containers, has leased ground floor space and basement in building at 129-33 West Twenty-seventh Street, and will occupy for operations, including company headquarters.

Chicago, Ill.—The Avery Corporation, 3462 North Kimball avenue, manufacturer of cardboard advertising displays, has acquired a tract of land adjoining plant, totaling about 135,000 square feet, heretofore held by the Commonwealth Edison Company, and will use for early erection of new addition for expansion in output. New unit will be one-story, occupying the majority of site, and is reported to cost over $50,000, with equipment.

Menominee, Mich.—The Heywood-Wakefield Company, Gardner, Mass., manufacturer of fiber and wood products, has arranged for removal of local fiber division to branch mill at Menominee, operated by a subsidiary interest, the Lloyd Manufacturing Company, manufacturer of similar products, and will concentrate such production at that location in the future.

Kansas City, Mo.—The Superior Wall Paper

Company, Joliet, Ill., manufacturer of wall paper stocks, plans installation of two large machines for coating and printing of wall paper in new mill at 16th and Howell streets, North Kansas City, to be secured under lease from the Kansas City Development Company, Railway Exchange Building, Kansas City, which is erecting the building, as recently noted in these columns. New plant will be one-story, 66 x 250 feet, and will be equipped for a rated output of 4,000,000 rolls of wall paper per annum. A subsidiary company is being organized to operate the mill, to be known as the Missouri Valley Wall Paper Mills, Inc. Fred G. Snedden, president of the Superior company, will head the new affiliated concern. New mill is estimated to cost over $100,000, with equipment, instead of smaller amount, previously noted. The Morris Hoffman Construction Company, Victor Building, Kansas City, has the general contract for erection and work is being placed in progress. Frohwerk & Bloomgarten, Bonfils Building, Kansas City, are architects.

Kingsport, Tenn.—The Tennessee-Eastman Corporation, manufacturer of acetate staple fiber, has work under way on new additions to mill for increased production, including installation of additional equipment.

Mont Rolland, Que.—The Rolland Paper Company, Ltd., 116 St. Paul street, West, Montreal, Que., manufacturer of bond and other writing papers, etc., has work under way on improvements in filter plant at branch mill at Mont Rolland, including new settling basin, filtration equipment and accessories. Company has been making improvements in power plant at mill at St. Jerome, Que., for increased capacity, with installation of a new turbine unit and auxiliary equipment.

Roanoke, Va.—The American Viscose Corporation, manufacturer of viscose rayon products, is expanding production at branch mill at Roanoke, and will soon reopen the sixth unit at the local plant, where modernization and improvements have been under way for some time past, including rebuilding of machinery. The mill will be placed on a capacity schedule for the first time since December 1937, with additions to working force. Main offices of company are at 200 Madison avenue, New York, N. Y.

New York, N. Y.—Radom & Ewen, Inc., 38 West 26th street, manufacturer of novelty paper boxes and containers, etc., has leased space in building at 52 West Twenty-sixth street, and will occupy for plant.

St. Louis, Mo.—The Gaylord Container Corporation, 2820 South 11th street, manufacturer of corrugated boxes and containers, occupying plant property under lease from Anheuser-Busch, Inc., 721 Pestalozzi Street, owner, has arranged with that company for the erection of a new five-story addition, 40 x 100 feet, to be used for general operations. It is estimated to cost over $75,000. General erection contract has been let to the L. O. Stocker Company, Arcade Building, St. Louis, and work will be placed under way at once. Arthur Klasing is company architect.

Victoria, B. C.—The Sidney Roofing and Paper Company, Ltd., manufacturer of roofing and building papers, test board stocks, etc., plans rebuilding of portion of ground wood mill, recently destroyed by fire. Loss reported over $25,000, with equipment.

Work on Marathon Started

(Continued from page 14)

Riverside Paper Corporation, Appleton, Wis., held its picnic Sunday, August 20, at Stroebe's Island, with 600 attending. A ball game, and numerous other games and contests featured the day's outing.

Marathon Paper Mills Company held its annual golf jamboree Saturday, August 19, at Butte des Morts Golf Club at Appleton, Wis. Forty-five were present from the carton division at Menasha, Wis., six from the main mills at Rothschild, Wis., and four from the tissue mills at Ashland, Wis.

Winners were: low gross, Kim McKenny; second, R. Lindstrom; low net, George Treiber; second, Melvin Mace; blind bogey, Fred Yaley; highest score, Jim Sensenbrenner; second, Ray Ziemer; longest drive, Jim Eckrich; nearest pin, David Lenz; good fellowship, Ira Clough, Jim Morrow and Hugh Hicks.

Purdy-Chapelle Nuptials

One of the important society weddings of the summer season was that of Hampton Purdy and Miss Ruth Chapelle, of Appleton, Wis., August 23 at the First Congregation Church at Appleton. A reception was held afterwards at Riverview Country Club. Mr. Purdy is employed by the Tuttle Press, Appleton, Wis., paper converting plant. He is a son of Roy H. Purdy, general manager.

Paper Bought Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 30, 1939—During the week ending August 19 the government purchased paper and allied products under the Walsh-Healey act totaling $57,769.64 as follows: Butler Company, for Navy Department, bond typewriting paper; $22,396.95; Whitaker Paper Company, mimeograph paper for Agricultural Department, $14,952.45; and Samson Paper Products Company, cards, paper; memorandum pads, for Navy Department, $20,420.24.

Tested Papers Open Headquarters

Tested Papers of America, Inc., recently organized by a representative group of 125 paper merchants to market nationally its own brands of trade-marked household and supply papers has opened headquarters in Chicago in the Carbide and Carbon Building at 230 North Michigan avenue. President Frank P. Vaughan has assumed active management, with the assistance of John A. Wesley, secretary, and Gladys M. Blackadder, assistant treasurer and office manager.

Southland Mill Progressing

Rapid progress on construction schedule is being made on the newsprint mill of the Southland Paper Mills, Inc., near Lufkin, Texas. Practically all of the plant is now under roof. The work of installing the water equipment has started and with the erection of the structure to house the grinding room, the several units of this new mill will soon be ready for the installation of paper-making equipment.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Ronald G. Macdonald
Editor Technical Section

Lynne M. Lamm
Washington Correspondent

Vol. 109 New York, August 31, 1939 No. 9

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Syracuse Hotel, Syracuse, N. Y., September 12-14.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Atlantic City, N. J. October 16-20.

BUSINESS PROSPECT GOOD

The prospect for fall business in general and for the paper industry and trade in particular, are good. General business activity has steadily improved since the week ended May 27 which was 87.6 per cent, compared with 75.0 per cent for the corresponding week last year. The general index of business activity, which includes components to represent major industries and trade activities, stood at 91.5 per cent for the week ended August 19, compared with 84.1 per cent for the like week last year.

In fact, business activity began to improve as soon as Congress indicated its opposition to President Roosevelt's third proposal for pump priming and when it became apparent that something would be done about taxes. Although business was moving upward last year at this date, improvement this year is at a much more rapid rate and extends over a wider area of the country. According to reports of the Federal Reserve, five districts show business well ahead of last year and in others volume ranges up to 13 per cent over the level of last year, with the smallest gains in the West.

Optimistic opinions are freely expressed by business men. "The improvement in business", said Herman H. Heimann, executive manager of the National Association of Credit Men in the association's August review of business, "should continue through the holiday season. Trade then should be equal or better than that experienced a year ago. On the whole, 1939 should prove better than 1938, both as to business volume and earnings; whether it will equal the reasonably satisfactory year of 1937 is somewhat questionable.

"While in the course of the next few years this nation should get started on a recovery that will be not only sound, but also of sustained duration, the recent improvement did not herald such recovery. The accumulated needs of this nation are such that once a feeling of confidence returns and some of the discouraging programs, not only here but throughout the world, have subsided, a recovery carrying over substantially a decade could easily be realized. It isn't necessary that the problems confronting us be completely solved, or that the economic abuses of the past be corrected at once. What is needed is unmistakable intent, supported by definite action, that a beginning of the solution of our world's problems and a start toward abandonment of our uneconomic theories has gotten under way."

Excluding the more obvious aspects of the political situation in Europe, economists point out that the general downward trend in commodity prices since March 1937 has been a deterring factor in recovery. The New Deal theory of restoring prices to the 1926 level was abandoned long ago and we are assured that the money tinkering methods of 1933-1934 will not be repeated. It is also said on good authority that the President's authority to further devalue the dollar is only to serve as a defensive threat in international currency and there is apparently no reason for thinking that further devaluation as a device to raise prices will be considered. But plans of the Administration economists and business men are hampered by the puzzling recession in prices. For example, the index of farm products has quite recently fallen to 61, which is within 10 per cent of where it stood before the dollar was devalued in 1934. The all-materials index at the end of July was one-third lower than during a period of 28 months, while corn and wheat dropped to the lowest since 1933. War crises do not, of course, cause prices to advance to any extent, but the outbreak of hostilities will do so as quickly as the normal movement of supplies is affected and interrupted production becomes to be felt in the scarcity of commodities experienced by most nations at war.

Earnings in the pulp and paper and allied industries improved slowly and steadily during this year. The aggregate net profit of twenty-nine companies for the first half of this year was $7,070,116, compared with $5,120,911 for the like period last year, or an increase of 38 per cent over 1938. In the first quarter of this year the reports of twenty-one companies showed an increase in earnings of 19.5 per cent; in the second quarter of this year the gain was 86.6 per cent over the corresponding period last year.

According to the current issue of the *Washington Review* published by the Chamber of Commerce of the United States, "Most fields of industry either have recently improved their position or see reasons

for expecting early upturns. Petroleum production is an exception, because of the troubles of overproduction. The automobile industry is about ready to enter upon its new manufacturing schedules. The steel industry seems about to reach a figure in production not equalled since 1937. The machine tool builders, with a large volume of orders, significantly record an increase in the proportion of domestic orders, although business for exports is still large. The chemical industries generally have been making progress, with improving sentiment in most divisions.

"The activities which are going forward appear in various indicators. For example, the output of electric power to meet demand is at an all-time peak for this season of the year. Shipments of coal are back to the rate of the good period in 1936-1937. There is not only a rising demand for domestic raw materials but a demand which reflects in growing imports of raw materials from abroad. So far this year there have been gains of 22 per cent in imports of crude materials and 25 per cent in imports of semi-manufactures over the figures for the corresponding portion of 1938. Perhaps the best indicator for the coming months is to be found in the evidences now beginning to appear of plans for raising new capital. Besides, August has seen the first upturn in many months in the aggregrate amount of business loans made by banks."

Pulp Investigation Continues

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 30, 1939—All indications point to the fact that it will be some weeks before the Treasury Department issues any kind of a decision as the result of its investigation into the dumping of wood pulp on the American market by foreign countries.

Experts of the Customs Bureau of the Department are still looking into foreign costs and doing other field work in connection with the investigation. Also those opposed to a finding of dumping are to be allowed either to file briefs or to have a hearing before a definite decision is made. The Departmental experts have announced that as a result of the preliminary work done there is an indication that the domestic manufacturers are being injured by the foreign competition.

Japan Imports Less Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 30, 1939—There was a sharp drop in arrivals of wood pulp in Japan during April, imports amounting to only 7,576 long tons, including 3,460 tons of paper pulp and 4,116 tons of rayon pulp, compared with total imports of 16,308 tons in the previous month and 22,629 tons in April 1938. The bulk of the wood pulp arrivals during April are believed to have originated from "Manchukuo" as the imports from "Other" countries accounted for 63.8 per cent of the total while imports from the United States accounted for only 13.6 per cent, and imports from Norway, 22.6 per cent.

Production Ratio Report

(These statistics are based upon paper production reports to the American Paper and Pulp Association)

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1939	1938	1937	1936	1935	1934
January	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	79.5%	66.0%	87.3%	80.7%	72.3%	.....
July	74.9%	72.0%	81.8%	77.3%	64.9%	.....
August	.....	77.2%	82.9%	81.5%	70.9%	.....
September	.....	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	72.3%	80.6%	81.3%	70.5%	.....
First 33 weeks	80.3%	68.9%	88.3%	79.0%	69.0%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1939		CORRESPONDING WEEKS, 1938	
July 15	81.0%	July 16	75.7%
July 22	80.7%	July 23	76.3%
July 29	81.6%	July 30	77.1%
August 5	80.3%	August 6	73.2%
August 12	82.7%	August 13	77.2%
August 19	81.9%	August 20	78.0%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	July 15, 1939	July 22, 1939	July 29, 1939	Aug. 5, 1939	Aug. 12, 1939	Aug. 19, 1939
0% to 50%	67	66	68	65	50	48
51% to 100%	236	238	233	221	231	154
Total Mills Reporting	303	304	301	286	281	202

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1935	62%	68%	68%	63%	61%	66%	62%
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1935	67%	71%	77%	71%	61%	66%
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%

Week end. July 15, 1939—71%
Week end. July 22, 1939—70%
Week end. July 29, 1939—70%
Week end. Aug. 5, 1939—70%
Week end. Aug. 12, 1939—71%
Week end. Aug. 19, 1939—72%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

Aldine Award Announced

The 1939 winners of the "Aldine Award", which was established several years ago by Harry E. Gould, president of the Aldine Paper Company, are, Robert Edward Wood, III and John Albert Stankey. This award is presented each year to the two Juniors with the highest scholastic standing in the Department of Printing, Carnegie Institute of Technology.

In establishing the "Aldine Award", Mr. Gould hoped to create an incentive toward greater accomplishment in the printing fields among these young students. The Aldine Paper Company realizes that these young students are the printers of tomorrow and we must look to them for future accomplishments of the printing and paper industry.

Formal presentation of the award will be made this fall, when the students return to school to complete their senior year. First prize of a cash award and bronze medal will be presented to Robert Wood and a second cash award will be given to John Stankey.

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Factors Affecting Lined Board Brightness*

By W. R. Willets[1] [2], R. T. Bingham[1] [2], and L. H. Ericksen[2]

Abstract

The brightness of a lined board having a filler of constant color and brightness is experimentally shown to be dependent on the opacity and brightness of the liner sheet. If the brightness of the liner sheet is constant, and only the weight varied, the brightness of the board is dependent on the opacity of the liner and is limited by the brightness of the liner stock. If the opacity of the liner sheet is constant, its brightness determines the brightness of the board. If both the opacity and brightness of the liner sheet are increased, e.g. by pigmentation with titanium dioxide, there is a dual effect in increasing the brightness of the lined board. It is demonstrated that it is possible by proper pigmentation to decrease the weight of the liner and still maintain board brightness.

While it is logical that the brightness of a lined board should be dependent on the opacity (that is to say, the covering power) and brightness of the liner sheet, a review of the literature has not resulted in disclosing any data bearing on these factors. Consequently, it was considered worthwhile to perform some experimental work along these lines in an effort to correlate liner sheet opacity and brightness with the brightness of lined boards made using such liners.

To do this it was necessary to develop a technique for making liner sheets; and for making lined boards in which similar sheets would be applied to the fillers, pressing them together in the wet state so as to simulate the action of a board machine in which the liner is pressed and bonded with the underlying filler plies. It was possible to do this using ordinary laboratory sheet making equipment, and at the same time to control and regulate such factors as the liner basis weight, opacity, brightness, pigmentation, etc.

While it is true that many boards are made using an underliner beneath the top liner, the investigations reported herein deal only with single ply top liners. Naturally, the use of underliners might alter the picture somewhat although it is believed that the same general indications would hold true. Likewise, the color and brightness of the filler itself would probably have an effect, but this factor was maintained approximately constant.

Procedure

The stock for the filler consisted of old newspapers which were thoroughly disintegrated in hot water by means of a high speed stirrer. The final concentration of this stock was 14 grams per liter, and was constant for all sets of boards made.

The stock for the liner sheets consisted of a purified grade of bleached sulphite. In all cases, the stock was very free, but in one case it was hydrated slightly more than in the others to reduce the opacity of the liner sheets.

The necessary stock for each liner sheet variation was stirred for 15 minutes in a high speed stirrer. Two per cent rosin size was added at the beginning of the stirring in all cases, followed by the pigment, where pigment was used. Three per cent alum was added 5 minutes before the end of the stirring.

After proper dilution of aliquots to secure the desired basis weight, 1 liter of stock was used for each liner sheet and diluted to 6 liters in the sheet machine. The temperature of the diluted stock on the sheet machine was 70 deg. F. Six sheets of this prepared liner stock were made, 3 being used to make the lined boards by applying them on the fillers, and 3 being dried separately and used for the determination of liner sheet properties.

In making the lined boards, the fillers were made first, using 1 liter of the old news stock. While the fillers were still wet and just as they had been taken off the sheet machine, the liners were made as described above and superimposed on them.

In all cases unlined boards were also made for the determination of their weight, caliper and brightness. The average caliper of these boards was about 20 points, while the brightness was 35 to 40 per cent.

The boards and liner sheets were dried by pressing between dry blotters in a hydraulic press. The pressure was increased by degrees, using a change of dry blotters after each press.

After drying in the press, the liner sheets and boards were conditioned in a humidity room at 70 deg. F. and 65 per cent relative humidity.

The liner sheets were tested for opacity and brightness using a Bausch and Lomb opacimeter. In determining the brightness a sufficiently thick pad of paper was used so that the opacity of the individual sheet was not a factor. A magnesium carbonate block having a brightness of 98.6 per cent was used as a standard. The basis weight, caliper, titanium dioxide content, etc. of the liner sheets were also

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* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York City, February 20-23, 1939.

[1] Member, TAPPI.

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determined. The brightness of the boards was measured using a Bausch and Lomb opacimeter with a magnesium carbonate block as a standard.

Because of the limitations of laboratory technique, especially in pressing, the relationships between liner weight and caliper probably do not equal those found in mill practice. For this reason, in plotting curves, etc., liner weights, rather than calipers, are used.

While the results obtained are probably not absolute, nevertheless they were all obtained under identical conditions and so should be relative and comparable.

Effect of Basis Weight on Board Brightness

Probably the easiest way to increase the opacity of the liner sheet is to increase its basis weight. Since the opacity of the liner sheet is thus increased, its covering power will be greater and the brightness of the lined board should naturally increase. Theoretically, in such a case, the brightness of the lined board should approach the brightness of the liner sheet, which is approximately constant for the different weights.

Figure 1 shows graphically the effect of increasing basis weight on the opacity of unpigmented liner sheets and on the brightness of corresponding lined boards. There is comparatively little difference in the two curves of Figure 1 (for which more detailed data are given in Appendix 1). In the lower curve the liner sheet brightness is slightly lower and the filler brightness slightly higher. The lower curve also covers a greater basis weight range.

It will be noted that while there is a tendency for the brightness curves of the lined boards to rise, even at the higher basis weights and opacities, there is a flattening off of the curves at the higher ranges. Up to a liner sheet opacity of approximately 96 per cent an increase in opacity resulted in considerable improvement in the brightness of the lined boards, but after this point had been reached, increases in opacity had comparatively little effect.

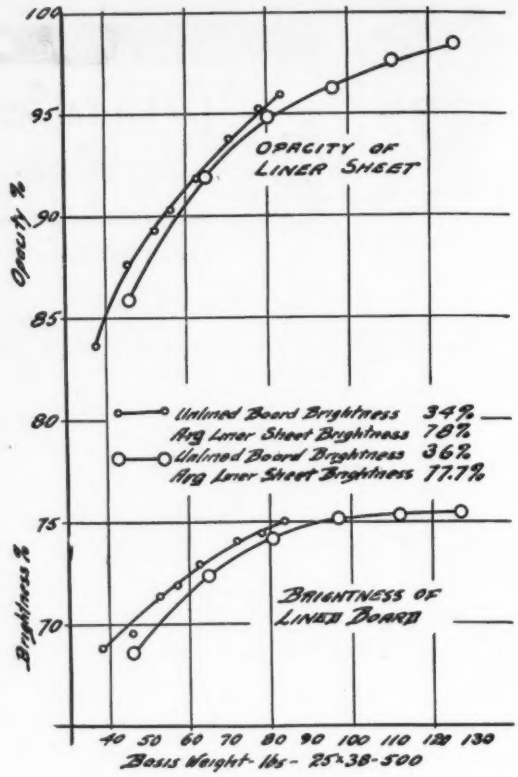

FIG. 1.
Effect of Basis Weight On Liner Sheet Opacity and Lined Board Brightness.

Effect of Pigmentation on Board Brightness

As a result of the above work which was all done at fairly constant liner sheet brightness, it was decided to vary not only liner sheet opacity, but brightness as well, at various basis weights, by the use of titanium dioxide (Titanox-A).

Figures 2 and 2A show liner sheet opacity and lined board brightness plotted against the titanium dioxide content of the liner sheet at various basis weights, and similar data plotted against basis weight

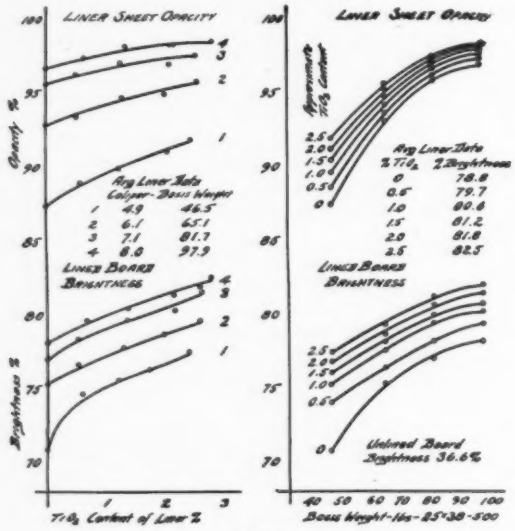

FIG. 2.
Effect of Pigmentation on Liner Sheet Properties and Lined Board Brightness.

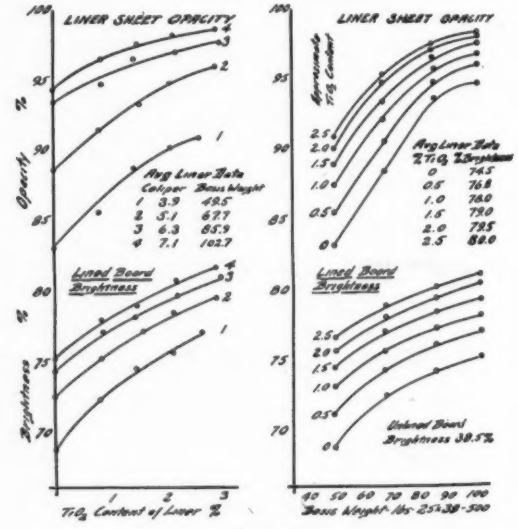

FIG. 2A.
Effect of Pigmentation on Liner Sheet Properties and Lined Board Brightness.

at various titanium dioxide contents. In Fig. 2 (and Appendix 2) the initial sheet opacity was high since the stock was practically unhydrated. In supplementary experiments (Fig. 2A and Appendix 2A) the initial sheet opacity was reduced somewhat by light beating so as to get a greater opacity (and consequently a greater lined board brightness) range.

It will be noted that liner sheet opacity, and consequently lined board brightness, increased with increasing amounts of titanium dioxide although the effect was somewhat less at the higher ranges. Likewise, the effect of basis weight on liner sheet opacity and lined board brightness was less at the higher ranges.

It will be seen from these curves that by increasing the liner sheet opacity by proper pigmentation, it is entirely possible to decrease its weight and still achieve a specified board brightness. For example, in one case when the liner contained approximately 1 per cent titanium dioxide, the use of a 50-pound sheet resulted in about the same brightness as if a 75-pound unpigmented sheet had been used. Many similar conclusions may be drawn from an examination of the curves.

It is therefore obvious that the brightness of a lined board can be materially increased by proper pigmentation and that this can also be accomplished in many instances with an accompanying decrease in liner weight. Inasmuch as liner stock forms the most expensive constituent of a lined board, it is evident that proper pigmentation, in conjunction with a decrease in the actual weight of the liner used, may result in marked savings.

Effect of Liner Sheet Properties on Board Brightness

From the results of Figs. 2 and 2A, it became apparent that an increase in liner sheet opacity resulted in an increase in board brightness. However, it was also indicated that liner sheet brightness had an effect on board brightness. Figure 3 shows the effect of varying the liner sheet opacity, at constant brightness, on board brightness. It will be seen that for a given

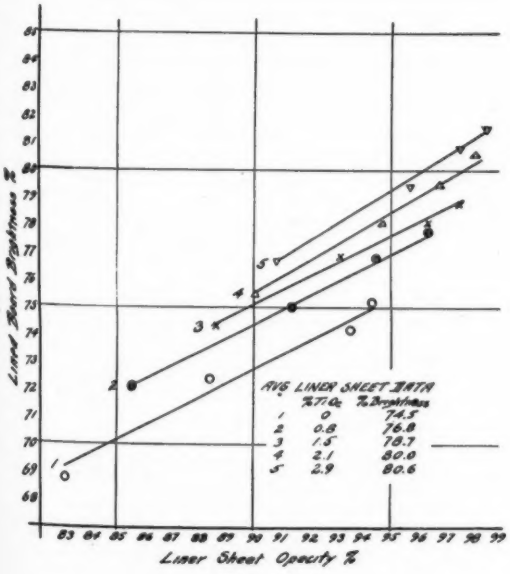

FIG. 3.
Effect of Liner Sheet Opacity on Lined Board Brightness.

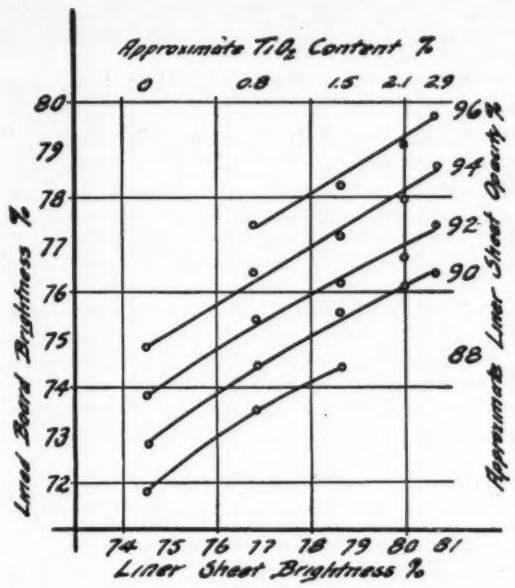

FIG. 4.
Effect of Liner Sheet Brightness on Lined Board Brightness.

liner sheet brightness the board brightness is almost proportional to the sheet opacity. An increase of 1 per cent in opacity resulted in an increase of approximately 0.5 per cent in board brightness. In other words, when the brightness of the liner sheet was a constant, an increase of 1 per cent in its opacity resulted in an increase in the board brightness of 0.5 per cent.

Liner sheet brightness also has a definite effect on lined board brightness, as shown in Fig. 4. If the opacity of the sheet is a constant, the brightness of the board will be approximately proportional to the liner sheet brightness. When the liner sheet opacity was held constant, an increase of 1 per cent in its brightness resulted in approximately 0.5 per cent increase in board brightness.

As has been pointed out, the easiest way to increase the opacity of the liner sheet is to increase its basis weight. However, this increase in basis weight will not result in an increase in liner sheet brightness, and any improvement in lined board brightness will result solely from opacity effects. If the opacity of the liner sheet is increased by the use of titanium dioxide, its brightness will also be increased. Consequently there will be a dual effect in increasing the brightness of the lined board resulting from the increase in both the opacity and brightness of the liner sheet.

Effect of Filler Properties

It is logical that the brightness and color of the filler, to which the liner is applied, will affect the ultimate brightness and color of the lined board. It is naturally more difficult to cover a filler having a very low brightness than one having considerably higher brightness. If the brightness of the filler were very low, a more opaque liner would be needed to effect sufficient covering than if its brightness were higher. In the foregoing work the brightness of the filler was kept constant for each set and so was not a factor.

Conclusions

If the brightness of the filler is constant:

The brightness of a lined board is dependent on the opacity and brightness of the liner sheet applied to the filler.

If the brightness of the liner sheet is constant, its opacity determines the brightness of the board.

If the opacity of the liner sheet is constant, its brightness determines the brightness of the board.

If the basis weight of the liner is increased, the brightness of the board will be dependent only on the increase in opacity resulting therefrom, and will be limited by the liner sheet brightness which is constant.

If titanium dioxide is used, both the opacity and brightness of the liner sheet are increased, and consequently, there will be a dual effect in increasing the brightness of the lined board.

It is possible to make a lined board with a lighter weight pigmented liner which will have greater brightness than one having a heavier weight unpigmented liner.

Appendix 1

EFFECT OF BASIS WEIGHT ON LINER SHEET OPACITY AND LINED BOARD BRIGHTNESS

Liner Sheets				
Basis Wgt., Lbs. (25 x 38-500)	Caliper in. 1000	Opacity Per Cent	Brightness Per Cent	Lined Board Brightness Per Cent
38.2	3.7	83.6	76.9	68.8
45.5	4.5	87.8	78.0	69.4
52.4	5.0	89.2	78.2	71.3
56.7	5.3	90.2	78.0	71.6
63.6	5.7	91.7	78.2	72.9
70.8	6.4	93.8	78.2	74.0
77.5	7.0	95.3	78.7	74.3
84.2	7.1	96.0	78.1	74.8
		Unlined Board		34.0
45.8	4.0	85.8	76.7	68.5
65.0	5.7	91.8	77.8	72.2
81.5	6.8	94.7	78.1	74.2
96.8	7.0	96.2	77.5	75.1
111.1	8.7	97.6	77.6	75.2
127.7	9.6	98.4	78.3	75.4
		Unlined Board		36.0

Appendix 2

EFFECT OF PIGMENTATION ON LINER SHEET PROPERTIES AND LINED BOARD BRIGHTNESS

Liner Sheets — Titanium Dioxide						
Per Cent Added	Per Cent Content	Basis Wgt., Lbs. (25x38-500)	Caliper in./1000	Opacity Per Cent	Brightness Per Cent	Lined Board Brightness Per Cent
0	0	47.4	5.0	87.4	78.8	70.7
1	0.61	45.8	4.7	88.9	79.5	74.5
2	1.25	46.4	4.8	89.7	80.8	75.4
3	1.80	46.8	4.9	90.9	81.4	76.1
4	2.46	47.7	4.9	91.9	81.6	77.3
0	0	65.1	6.1	93.0	78.8	75.3
1	0.66	64.7	6.0	93.3	79.9	76.6
2	1.32	65.4	6.2	94.7	81.0	77.6
3	2.00	63.8	5.9	94.7	81.9	78.4
4	2.63	66.7	6.3	95.5	82.5	79.6
0	0	82.5	7.1	95.8	78.9	77.0
1	0.57	80.4	7.2	96.2	80.4	78.4
2	1.37	83 4	7.4	97.0	81.0	79.6
3	2.15	79.5	7.0	96.7	82.0	80.2
4	2.61	82.7	6.9	97.4	82.5	81.8
0	0	96.2	8.2	96.9	78.8	78.1
1	0.70	96.2	7.9	97.4	79.9	79.7
2	1.41	99.0	8.2	98.2	80.9	80.2
3	2.20	96.2	7.9	98.2	81.6	81.0
4	2.80	101.8	7.7	98.4	82.4	82.5

Appendix 2A

EFFECT OF PIGMENTATION ON LINER SHEET PROPERTIES AND LINED BOARD BRIGHTNESS

Liner Sheets — Titanium Dioxide						
Per Cent Added	Per Cent Content	Basis Wgt., Lbs. (25x38-500)	Caliper in./1000	Opacity Per Cent	Brightness Per Cent	Lined Board Brightness Per Cent
0	0	47.9	3.8	83.0	73.8	68.8
1	0.78	48.4	3.8	85.5	76.2	72.2
2	1.42	50.6	4.0	88.6	78.3	74.4
3	2.10	50.6	4.1	90.0	79.1	75.4
4	2.62	50.2	4.0	90.7	80.1	76.9
0	0	66.3	4.9	88.3	74.0	72.4
1	0.81	67.1	5.1	91.4	76.6	75.0
2	1.55	66.0	5.0	93.1	78.6	77.0
3	2.13	70.0	5.3	94.7	79.7	78.3
4	2.91	69.2	5.3	95.8	80.0	79.4
0	0	83.1	6.1	93.5	74.9	74.2
1	0.86	85.8	6.3	94.5	77.0	76.9
2	1.44	86.5	6.3	96.4	79.1	78.0
3	2.20	87.8	6.4	96.8	80.1	79.6
4	2.99	86.5	6.3	97.5	81.3	80.8
0	0	98.3	6.8	94.2	75.5	75.3
1	0.78	101.3	7.0	96.4	77.5	77.9
2	1.49	103.1	7.2	97.5	78.7	78.8
3	2.16	105.1	7.3	98.0	80.1	80.7
4	2.90	105.6	7.3	98.5	81.0	81.6

New TAPPI Members

R. G. Macdonald, secretary of the Technical Association of the Pulp and Paper Industry, announces the election to membership by the executive committee of the following:

Walter Lenz, Engineer, Fabrica de Papel "Pena Pobre", Tlalpam, D. F. Mexico City, was educated at Staatl. Hochschule f. ang. Technik. He was formerly with Papierfabrikant, Natronzellstoff-Krappitz, Papyrus A. G. and Fabrica "Loreto".

Willard F. Schroeder, senior in pulp and paper, New York State College of Forestry, Syracuse, N. Y., is working at the Glassine Paper Company during the summer.

William P. Stillman, Chemist, Bird & Son, Inc., East Walpole, Mass., is a graduate of the University of Maine with a B.S. in Pulp and Paper Technology.

F. J. Hoar, Manager, Canadian Stebbins Engineering and Manufacturing Company, Ltd., Montreal, is promoted to Active Member grade. He is a 1923 graduate of Clarkson College of Technology with a degree in mechanical engineering.

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TAPPI Papers Series XVII

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A Photronic Brightness Tester, Opacimeter and Gloss Meter*

By Stanley W. Blanchard[1]

Abstract

The development of a brightness meter, and opacity meter and experiments in measuring gloss are described. The combining of all these functions in one instrument is discussed.

Introduction

I offer this paper with apologies to the much better written and more scientific papers that have already been presented in the optical properties field. My excuse for giving it is that I, and others, have used the instruments described as a very useful tool in the field to study variations in the quality of paper, to trace down the causes, and to make interesting and valuable comparisons. I wish to stress that the instrument as finally developed is not a precision mono-chromatic instrument, but rather a tool, to be used as an adjunct to such an instrument or for such mills as do not feel justified in making the relatively heavy investment for a mono-chromatic instrument.

Studies With Brightness Instrument

The birth of the instrument was several years ago. The writer was employed by a company on the West Coast and was assigned the problem of improving the brightness of paper made at several different mills and bringing them to the same standard of quality. After a short period of visual comparison of samples and the use of an instrument depending on the visual matching of two adjacent fields in which different operators obtained different readings, it was realized that an instrument not as dependent on human judgment would be necessary.

No low priced photo-electric instruments were available and as the Weston Photronic Cell was being introduced at that time its application to the problem was seen and applied in constructing an instrument for reading brilliance or brightness. A diagram of this instrument is shown in Fig. 1. It consists of a light source (A) 50 c.p. 6-8 volt bulb in a parabolic reflector connected to a storage battery; an aperture plate (B) for holding the standard or the sample; a photo-voltaic cell (C) mounted in a carriage readily adjustable in a direction perpendicular to the face of the sample and (D) a low resistance micro-ammeter (1-100) connected to the photo-cell. The light beam meets the surface of the standard or sample at an angle of 45 degrees, the cell is at an angle of 90 degrees with the sample so that the light received by the cell is diffusely reflected.

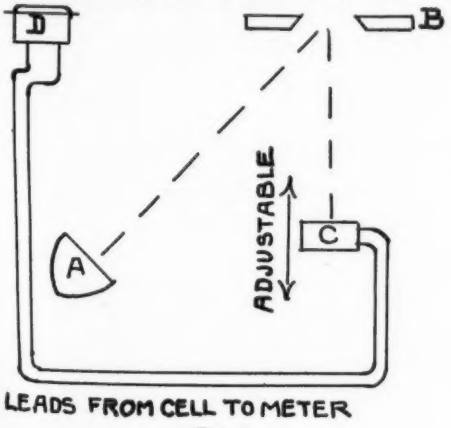

FIG. 1

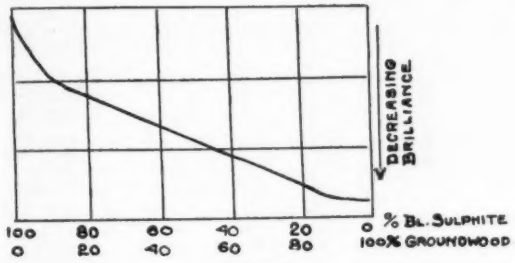

FIG. 2

The photo-voltaic cell, which is now on the market by several reliable manufacturers generates a current of electricity directly proportional to the amount of light that falls on it. No amplifying tubes or current source is required. The visual response of the cell is reasonably close to that of the human eye. It is desirable, however, that any current measuring device used with it, such as a micro or milli-ammeter, be of low resistance as otherwise the current output of the cell becomes a curve instead of practically a straight line.

The use of this instrument immediately provided a numerical statement of the relative brilliance of pulps made from various woods, a study of the progressive degrading in brightness of a pulp from the point of manufacture through chests, pumps and pipe lines to point of use, the effect of slime prevention and removal, use of brightening agents such as zinc-hydrosulphite, etc. Hand sheets of pulp from various points of a system from start to finish were made, the iron content of the pulp at the various points were determined and a graph showing the loss in brightness with increasing iron contamination readily constructed. It was also possible to estimate the relative cost of improving brilliance by various methods so that the greatest improvement per dollar spent could be had.

An interesting sidelight was the effect of varying percentages of bleached sulphite and groundwood, starting with an all bleached sulphite sheet and ending with an all groundwood sheet. Fig. 2 shows a graph of the results. It will be noted that adding a small amount of groundwood to the bleached sulphite degrades the brightness much more than would be expected from the proportion added. The main part of the curve follows a straight line until a sheet is reached at around 15 per cent bleached sulphite and

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85 per cent groundwood where it is but very little brighter than the original groundwood. Obviously, if one were working to improve the brightness of a sheet of news where the sulphite is around this amount, he would forget the sulphite and concentrate on the groundwood.

The instrument as described above, together with Wratten color filters, was used by several West Coast mills and also by P. R. Hines in studying the efficiency of deinking *(1)*.

Another very useful and practical application of the instrument was in the laboratory for colorimetric-quantitative chemical analysis. By using an absorption cell in front of the photo-cell, the first taking readings of three or preferably more known samples, a standard curve could be constructed from which the concentrations of unknown samples could be more accurately determined than with the usual Nessler tubes or other visual apparatus. This method was used in determining p.p.m. of iron in pulps and water which has an important effect on the final brightness of the pulp or paper.

The measurement of opacity is simple with the use of the photo-cell and is illustrated in Fig. 3. (A) the light source, (B) the aperture plate, (C) the photo cell and (D) the micro-ammeter.

The arrangement of the parts is such that the light falls directly on the cell after passing through the aperture. A diffuser in front of the light of opalescent or ground glass may or may not be used as desired.

In use, the light is adjusted at such a distance from the cell that the meter reading is 100 with no sample in place. The sample is then inserted between the aperture plate and the cell and the meter then shows the amount of light passing through the sample. Subtracting this from 100 gives the opacity reading of the sheet.

As the photo-cell was such a very useful tool for measuring other optical properties of paper, its application to the measurement of gloss was logical. An experimental instrument according to Fig. 4 was made. The light source and the photo-cell were each mounted on a separate limb pivoted from a common point directly above which the standard or sample was mounted. The reason for making the angles adjustable was because at that time (1933) no information regarding the desirability of as small an angle as possible had come to the writer's attention. We found that as small an angle as possible was most desirable but as this phase has been discussed elsewhere by others *(2)* it will not be gone into here. We did note some interesting readings from the variable angle instrument by first setting the light beam at the 15 degree angle and the cell at the same so that direct reflection was secured and adjusting so that the meter reading was 100. Then by leaving the light stationary and moving the cell in an arc by use of the pivoted limb, the per cent of diffuse reflection at various angles was taken. Some interesting figures on the effect of different surfaces and textures were secured by this means, but we never carried it to any practical application. The question of converging or parallel light beams caused some complications at first, but was standardized by using a means of securing definite convergence of the light beam. To do this a tube is mounted in front of the photo-cell and at the end nearest the object a standard slit is placed. A black tile, which is used as an empirical 100 per cent gloss standard, is placed back of the aperture and the focus on the light adjusted until a 100 reading is obtained. The sample is then substituted for the title and the reading made direct.

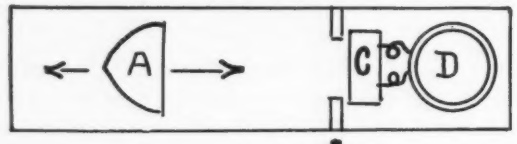

FIG. 3

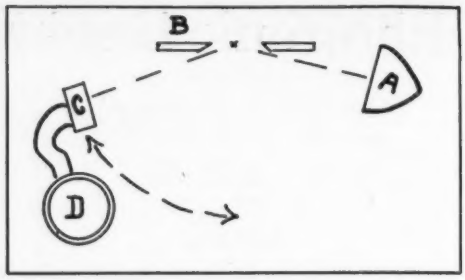

FIG. 4

The Combined Instrument

All of the measurements discussed above, brightness (with or without color filters), opacity or transparency, and gloss, employ the same fundamental parts: a. light source, b. aperture plate, c. photo-cell, d. micro-ammeter, and e. current source. With this in mind an instrument was designed so that the essential parts of the instrument could be readily placed in such a position that relative diffuse reflection, direct reflection or transmission of light could be made.

Fig. 5 is a diagrammatic sketch of the final combined instrument, to make brightness, opacity and gloss measurements. While it is somewhat more convenient to have several separate instruments, there are instances where the budget allows for the purchase of but one, and as this instrument may be constructed for the approximate cost of a single instrument, it enlarges the field of application of photo-cell instruments as a tool in the mill and laboratory.

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(1) Hines, P. R. and Bean, J. J., *Paper Trade J.* 103 no. 10: 39 (Sept. 3, 1936).

(2) Institute Paper Chemistry, Instrumentation Studies V Report on Gloss *Paper Trade J.* 104 no. 1:42-45 (Jan. 7, 1937).

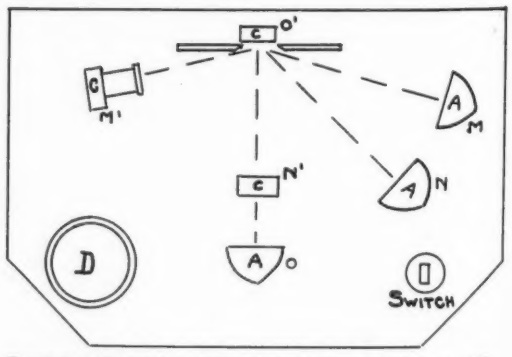

FIG. 5

An Aging Test for Envelope Adhesives*

By J. Rex Adams[1]

Abstract

A study has been made of the natural conditions affecting the development of discoloration in envelopes. From this study was evolved an accelerated aging test which has proved a useful tool in the study of adhesives. The elements of temperature and atmospheric humidity were evaluated with temperature alone found important. Accurate duplication of the effect of one year natural aging was obtained in 72 hours by means of the aging test. Confinement in an air-tight container was found essential to obtain consistent results.

Historical

Despite the fact that the art of paper manufacture dates back to before 3000 B. C., the art and practice of envelope manufacture is still a comparatively new industry. Prior to the passage of the Penny Postal Bill in England in 1839, most of the correspondence was forwarded by messenger (collect) and the outside wrapper consisted merely of a sheet of paper folded to conceal the message. This wrapper was sealed with sealing wax. However, since that time, envelopes (as we now know them) have been used. The first envelopes were folded and pasted by hand at an excedingly low production rate. The idea of machines for manufacturing envelopes was fermenting and after several unsuccessful attempts by numerous individuals, Russell L. Hawes, a physician of Worcester, Mass., constructed a successful machine for folding envelopes. From that time on, the industry grew steadily until today it is a thriving and useful adjunct to the paper industry as well as playing an important part in our daily lives.

With the introduction of a machine for the manufacture of envelopes, there was introduced the problem of proper adhesives for sticking the several portions of the envelope. In time, numerous substances were tried and then passed over in favor of newer and more efficient products.

The process of evolution saw the use of natural gums, such as arabic, hot animal glues, fish glues, various domestic starch products and finally tapioca starch or its related sago product. Each successive step in the evolution was a forward move and dictated by reasons of economy as well as efficiency. At the same time this process of evolution was in progress, many advancements were being made in the field of paper making which had far-reaching effect on the envelope industry. Upon arrival at the present status of the industry, tapioca dextrines are found in almost universal use as adhesives. These adhesives are low in cost and easy to use, which seems to be the major requirements of the industry, and consequently they have been in extensive use for the past two decades.

Statement of the Problem

While these adhesives fairly well meet the requirements of the industry, they are far from perfect. One of the chief objections (with which there is great concern) is the fact that upon aging for long periods of time the adhesive used on the body seam of the envelope will change in color from an invisible water white to a very objectionable brown discoloration. This color change is not rapid and in times of rapid stock turnover no serious complaints were recorded. However, the conditions the past few years were such that stocks were stored for longer periods of time before use, and many rejections resulted due to the discoloration of the body seam. This then indicated that a serious problem did exist. That the seriousness of the problem was recognized by the industry is evidenced by reference to the N. R. A. Code as approved on January 23, 1934. Quoting from page 343 of Registry Number 403-1-01, approved code No. 220; "Section N Number 11—Discoloration due to gum—on account of the variety of dyes and other materials used in the manufacture of paper, the envelope manufacturer assumes no liability for discoloration due to the application of adhesives on papers supplied by the customer or specified by him."

Purpose of This Investigation

It is obvious from these statements that the industry is faced with a serious problem, about which little is known. It is the purpose of this investigation to supply as much information as possible in answer to the three main questions involved, namely: The types of adhesives causing the condition; the types of papers affected, and the time element involved.

Experimental Procedure

Before any experimental procedure could be settled upon, it was necessary to note the close inter-relation of the pertinent facts sought. For example, type adhesive A applied to paper B might show objectionable color in X months, while type adhesive C applied to paper D might show objectionable color in a shorter period of Y months. Also, it was necessary for purposes of clarity to classify the discoloration by degree. This could best be done visually and, in the hands of a trained operator, remarkably accurate results were obtained. After the examination of a large number of discolored envelopes, it was found that there were six general classes into which the degree of discoloration could be divided and, if desired, numerical values could be assigned. These classifications and their numerical values were:

Classification	Value
None	1.0
Trace	2.0
Faint	3.0
Noticeable	4.0
Bad	5.0
Very bad	6.0

Of these classifications, only the first two were indicative of envelopes acceptable to the trade as a perfect product.

With this basis to start from, the procedure that suggested itself was to prepare sample envelopes of the various types of paper to which were applied the various known adhesives and then age them under normal storage conditions for a considerable time with periodical examination; or, as an alternative method, devise some means whereby the conditions existent at the end of a long period of time would be

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Abstracted from a thesis presented to the Rose Polytechnic Institute in partial fulfillment of the requirements for the degree of chemical engineer.

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attained in a few days. Both methods have merit and the procedure finally adopted was a combination of the two methods suggested.

There were available a large number of discolored envelopes of known age representing the types of paper which, when subjected to critical examination, would suggest the extent to which discoloration occurred within each type. All the samples were prepared from the same adhesives and any results obtained would indicate the differences in the papers. These samples were subjected to a visual examination and were classified as to type of discoloration. The results of this survey gave the desired information as to the types of paper affected, and will be discussed in detail later in this report.

Definition of Terms

Throughout this report of investigation, the broad terms of paper and adhesives appear with great frequency; their use in this sense is limited as differentiated from the general meaning associated with them and cognizance must be taken of these limitations. Broadly, the definitions as given in Webster's New International Dictionary, 1923 are:

Adhesives: Having the quality of adhering. Tending or causing to adhere. Sticky. Prepared to adhere. Gummed. Figuratively, clinging.
Paper: A substance made from fibrous materials, such as rags, wood or bark into thin sheets or leaves for various uses.

The adhesives with which this investigation is concerned conform roughly with the general classifications, but are limited by their specific properties. They are referred to in the industry as gums, but here again limitations must be imposed to differentiate them from the natural derivatives more commonly referred to as gums.

At the present time, the adhesives in general use in the envelope industry are synthetic products derived from some form of raw starch. A more specific classification might be vegetable glue, but here again common usage has limited the definition so that it does not apply to the materials with which we are concerned. For that reason, then, the adhesives will be classified as gums and be defined more specifically by the properties identified therewith.

Two types of gums are commonly used in the manufacture of envelopes. Their properties are widely divergent, dependent upon their function in the manufacturing process, and use of the envelope. This investigation deals only with one of these two types, but for sake of clarity, both types are described as to their preparation and properties.

To appreciate the properties required of the various adhesives, it is necessary to inspect the customary envelope of present day commerce. There are two distinct flaps to which adhesives are applied. One flap is that which is sealed down in the process of folding to make the envelope proper. It is, in common terminology, the body or back flap of the envelope. The other flap is that sealed down by the consumer, to complete the closure of the envelope, and is known as the front or seal flap of the envelope. The properties most desired for a body flap adhesive are permanence of bonding, flatness, and absence of color. This adhesive need not be fast-drying or possess a high gloss. Neither must it have the property of regaining tackiness upon the application of moisture but it is necessary that the gum possess appreciable strength immediately after application so that the folded flap will be firmly held in place after folding. On the other hand, the front or seal flap adhesive must be capable of drying rapidly and again regaining tackiness upon the application of moisture. It need not be colorless, though a light color is preferred, and when dry it must possess an appreciable amount of gloss else the illusion of insufficient gumming be given. This adhesive must, above all, be of such character that in sealing moisture may be applied by the human tongue without danger from toxic substances, or discomforts due to bad taste, to the person sealing the envelope.

The development of suitable adhesives for the highly mechanized envelope industry has been a long and involved process of research resulting in the present day articles of commerce which fulfill the major requirements of the industry. These adhesives in greatest usage are derived from tapioca starch by a process of heat treatment combined with the action of certain volatile acids, such as acetic or hydrochloric. Two grades of this starch are supplied to the industry as dextrines used as a base for the preparation of adhesives. The one used on the seal flap is a completely dextrinized starch and consists of a slightly colored powder varying in shade from canary yellow to dark brown. This powder will, when dispersed in water by heating, form a mucilage of appreciable viscosity, which it retains for a period varying from a few hours to many weeks. This fluid property of the adhesive allows for its successful application by machine.

Such adhesives possess all the desired properties outlined previously. In the preparation of back flap adhesives, color is important. For that reason the roasting of the raw tapioca starch is interrupted before any color change occurs. Then when this product, known as partially dextrinized starch, is dispersed, an appreciable amount of a volatile acid, such as acetic, is added to complete the dextrinization without a resultant color change. This mixture has all the desired properties of a body seam adhesive except viscosity, suitable for use in the envelope machines. To impart the necessary fluidity to the gum, an appreciable amount (sometimes as much as 40 per cent) of cane sugar is added, and an efficient gum is produced.

These adhesives represent the highest degree of development in the art of envelope manufacture. Much study has been devoted to the problem of suitable adhesives, but these studies have been more particularly concerned with improving the strength of the front flap adhesives. Very little attention has been paid to the problems of the back flap adhesives. This investigation is directed to these problems alone. In the confines of this report then, the term adhesives refers to those used on the body seam of the envelopes.

In the broad terminology, paper, as defined, covers a multitude of substances. However, many of these substances are entirely unsuited for use in the manufacture of envelopes. It is necessary to limit more specifically this classification for the sake of clarity. This investigation is concerned with the higher grades of paper in use for business and personal stationery. They are those types ordinarily classed as bond and writing papers. The derivation of this terminology is not quite clear but a logical assumption is that the term was introduced to describe the strength and permanence in the paper that made them suitable for use as bonds and other valuable documents. Regardless of the derivation, the name applies to a definite class of materials of distinctive properties and the highest quality. There are three types of bond papers, according to their method of manufacture. They are:

Glue sized papers: Paper high in strength prepared from rag or rag and wood fibers, surface treated in finishing with a weak glue solution to impart writing and printing properties.

Starch sized papers: Papers quite similar to the glue sized papers except that they are treated with a starch solution to impart the writing and printing properties.

Sulphite papers: Papers prepared from wood fibers which have been cooked in a solution of calcium and magnesium bisulphites containing an excess of sulphurous acid. These papers are so prepared by "beating" and the addition of rosin sizing which is precipitated onto the fibers with alum, that no surface treatment is required to impart writing and printing properties. These papers are weaker and less permanent than papers made from rags, but they are also less expensive and have a definite place in the business world.

These three classifications do not begin to embrace the numerous paper products of the industry, but from these papers arise the major portions of the problems confronting the converting field and, thus, this report can be safely limited to those papers.

Preliminary Investigation

There were on hand a large collection of commercially prepared envelopes varying in age from one to three years. These envelopes were equally divided among the three main classes of paper and represented a fair cross-section of the products of a typical envelope plant. They were examined by visual means and classified as to degree of discoloration, in reference to their age and strength of adhesive bond. For the purposes of this classification, the samples were divided into eight groups as follows:

Group 1—Bad discoloration, no adhesive bond
Group 2—Bad discoloration, adhesion satisfactory
Group 3—Noticeable discoloration, adhesion satisfactory
Group 4—Faint discoloration, no adhesion
Group 5—Very faint discoloration, adhesion poor
Group 6—Very faint discoloration, adhesion satisfactory
Group 7—No discoloration, adhesion fair
Group 8—No discoloration, adhesion satisfactory

It is obvious that any envelopes falling in the first five groups are unsatisfactory for commercial consumption. Group six was satisfactory for certain types of work such as third class mailings only, while Groups 7 and 8 would be satisfactory for any type of work in the high-grade business correspondence and stationery field.

The samples examined were evaluated in relation to type of paper as well as age from which the following data was secured:

TABLE I—TYPE OF PAPER

Group	Number of Items Glue Sized	Starch Sized	Sulphite Stocks
1	9	..	..
2	16	..	..
3	18	..	1
4	9	..	..
5	10	..	..
6	6	3	1
7	6	1	..
8	7	2	5
Total items	81	6	7

TABLE II—RELATION OF AGE TO GROUPING

Glue Sized Papers

Group	2 years	1.5 to 2 years	1.0 to 1.5 years	Under 1 year
1	..	2	4	2
2	..	12	2	1
3	1	5	9	3
4	..	..	6	4
5	..	..	2	..
6	1	2	2	1
7	..	2	..	6
8	..	1	1	3
Total	2	24	26	49

Starch Sized Papers

Group	2 years	1.5 to 2 years	1.0 to 1.5 years	Under 1 year
1	..	..	..	..
2	..	..	..	..
3	..	..	..	..
4	..	..	..	..
5	..	..	..	..
6	..	2	1	..
7	..	..	..	1
8	..	1	1	..
Total	0	3	2	1

Sulphite Papers

Group	2 years	1.5 to 2 years	1.0 to 1.5 years	Under 1 year
1	..	..	..	..
2	..	1	..	..
3	..	..	..	..
4	..	..	..	..
5	..	..	..	1
6	..	..	..	..
7	..	1	..	2
8	..	..	2	2
Total	0	2	2	3

From this data the following obvious conclusions may be drawn: 1. Papers surface-sized with glue are very susceptible to discoloration and loss of adhesive strength in periods of less than one year. 2. Papers surface-sized with starch retain satisfactory adhesion and require a much longer period before discoloration of any form appears. 3. Sulphite papers show no serious discoloration in less than two years and hence are of no consequence in this study.

These results then limit the investigation almost solely to the papers surface treated with animal glue. It is unfortunate that this class of papers are the most expensive to produce and their use is confined to the highest quality fields of business and personal stationery which tends to increase the seriousness of the situation.

Natural Aging Test

When the results of the preliminary investigation were tabulated, the scope of the problem was limited to a great extent, but complaints from customers in various localities had indicated that climatic factors influenced the rate at which envelopes deteriorated. This then required investigation, so, a natural aging test was conducted which was intended to evaluate these climatic factors in terms of discoloration. For the purpose of this study, localities were selected in light of their atmospheric temperature and humidity conditions. The locations selected and their mean yearly temperature, outdoor and indoor humidities were:

TABLE III—MEAN YEARLY

Location	Temperature deg. F.	Outdoor Humidity * Per cent	Indoor Humidity ** Per cent
Westfield, Mass.	53	59	34
Pittsburgh, Pa.	55	61	39
St. Louis, Mo.	57	57	38
Tampa, Fla.	73	60	67
Houston, Texas	70	58	58

* Noon humidity values. ** Mean outdoor humidity corrected to room temperature of 70 deg. F.

Obviously, from a geographic point of view, the locations were of sufficient variation that accurate conclusions could be drawn. From the temperature and humidity data, it was also obvious that sufficient variation existed to indicate the influence of these factors as well.

Samples for Aging

The purpose of this study being to determine the influence of atmospheric conditions upon envelope adhesives, the samples sent out for aging were prepared from the adhesive used in the commercial preparation of envelopes. This particular adhesive is

TABLE IV

WESTFIELD, MASSACHUSETTS

Month	Mean Temperature deg. F.	Mean * Outdoor Humidity Per cent	Mean ** Indoor Humidity Per cent	Stock A		Stock B	
				Discoloration	Adhesion	Discoloration	Adhesion
October	58	56	38	None	Excellent	None	Excellent
November	49	62	31				
December	37	60	21	None	None	None	Excellent
January	31	60	17				
February	31	63	19	None	None	None	Excellent
March	39	62	23				
April	50	47	24	None	Fair	None	Excellent
May	60	54	38				
June	67	56	52	None	Excellent	None	Excellent
July	74	63	67				
August	72	61	62	Very faint	Excellent	Trace	Excellent
September	67	60	54				
October	58	56	38	Noticeable	None	Trace	Excellent
Yearly	53	59	37				

PITTSBURGH, PENNSYLVANIA

Month	Mean Temperature deg. F.	Mean * Outdoor Humidity Per cent	Mean ** Indoor Humidity Per cent	Stock A		Stock B	
				Discoloration	Adhesion	Discoloration	Adhesion
October	57	60	39	None	Excellent	None	Excellent
November	52	67	34				
December	42	71	28	None	Poor	None	Excellent
January	33	69	16				
February	35	68	21	None	None	None	Excellent
March	36	61	21				
April	51	57	29	None	Excellent	None	Excellent
May	61	55	39				
June	70	56	56	None	Excellent	None	Excellent
July	77	54	68				
August	73	57	62	Faint	Excellent	Trace	Excellent
September	70	57	57				
October	57	60	39	Faint	Poor	Trace	Excellent
Yearly	55	61	39				

ST. LOUIS, MISSOURI

Month	Mean Temperature deg. F.	Mean * Outdoor Humidity Per cent	Mean ** Indoor Humidity Per cent	Stock A		Stock B	
				Discoloration	Adhesion	Discoloration	Adhesion
October	61	58	35	None	Excellent	None	Excellent
November	49	68	32				
December	40	71	27	None	Excellent	None	Excellent
January	36	60	20				
February	40	55	20	None	Poor	None	Excellent
March	38	56	20				
April	54	52	30	None	Excellent	None	Excellent
May	61	53	32				
June	79	53	71	None	Excellent	None	Excellent
July	81	48	68				
August	75	54	62	Very faint	Excellent	Trace	Excellent
September	76	53	68				
October	61	58	35	Noticeable	Excellent	Trace	Excellent
Yearly	58	57	40				

TAMPA, FLORIDA

Month	Mean Temperature deg. F.	Mean * Outdoor Humidity Per cent	Mean ** Indoor Humidity Per cent	Stock A		Stock B	
				Discoloration	Adhesion	Discoloration	Adhesion
October	76	55	67	None	Excellent	None	Excellent
November	70	52	52				
December	72	65	68	None	None	None	Excellent
January	58	64	41				
February	61	59	41	Very faint	None	None	Excellent
March	61	56	40				
April	69	62	60	Very faint	None	None	Excellent
May	76	58	68				
June	81	55	78	Noticeable	Fair	Very faint	Excellent
July	84	64	100				
August	82	64	94	Bad	Good	Faint	Excellent
September	80	60	82				
October	76	55	67	Bad	Fair	Faint	Excellent
Yearly	73	59	66				

HOUSTON, TEXAS

Month	Mean Temperature deg. F.	Mean * Outdoor Humidity Per cent	Mean ** Indoor Humidity Per cent	Stock A		Stock B	
				Discoloration	Adhesion	Discoloration	Adhesion
October	76	51	61	None	Excellent	None	Excellent
November	68	59	53				
December	56	76	46	None	Poor	None	Excellent
January	54	61	37				
February	58	62	41	None	None	None	Excellent
March	56	56	35				
April	65	58	49	Very faint	Poor	None	Excellent
May	72	56	59				
June	82	52	78	Noticeable	Poor	Trace	Excellent
July	84	56	84				
August	83	54	79	Bad	Good	Faint	Excellent
September	82	53	75				
October	76	51	61	Bad	Excellent	Faint	Excellent
Yearly	70	57	58				

* Noon humidity values.
** Reference temperature 70 deg. F.

used extensively throughout the industry and represents the best available commercial product. The papers from which the envelopes were prepared differed only as to the surface treatment in finishing. They were:

A. 100 per cent rag stock surface treated with animal glue.
B. Same stock as A but surface treated with starch.

As soon as the samples were made, they were placed in small boxes and wrapped. Six sets of samples were sent to each locality with instructions for the return of one set every two months for a year. Thus, each box of samples was undistributed until opened for examination and classification.

Results of Natural Aging

Upon receipt of the samples from the aging stations, the boxes were opened and the envelopes examined for both discoloration and adhesion. The results are tabulated in comparison with their corresponding temperature and humidity values as follows in Table IV:

Discussion of Results

The facts brought out by this aging test substantiate the results of the preliminary test made on the commercial samples previously examined. In addition, the limiting periods of aging necessary to develop discoloration were determined. The interpretation of these results in terms of atmospheric conditions must be carefully done else false impressions be gained. This can best be done by analysis of the respective periods of aging. For example, samples aged in Tampa, Fla., developed color in four months. The average temperature for that period was 67.4 deg. F., and the average outdoor relative humidity 59.0 per cent. Other samples aged in Pittsburgh, Pennsylvania, required ten months to develop color during which time the average temperature was 58.7 deg. F., and the average outdoor relative humidity 61.4 per cent. This would indicate then, that humidity did not figure in the development of discoloration. By comparing the Houston, Texas and Tampa, Fla. results, where the relative outdoor humidity for the first six months of the aging is approximately the same (60.4 and 59.0 per cent respectively) it is noted that color develops in four months in Tampa while six months are required in Houston. The temperature in Tampa, however, is 66.7, as against 62.0 deg. F., for Houston. Thus, while the ultimate result in both cases is the same, it is apparent that the discoloration develops more rapidly at the higher temperature. This analogy can be carried further when the difference in degree of discoloration between samples aged in the Southern locations and those aged in the Northern locations is noted. These comparisons serve as corroborative proof of the facts established by the Tampa-Houston comparison. In all the cases, serious discoloration was developed on the glue-sized stock A while the starch-sized stock B was relatively free from difficulties of this sort, except in the hot southern localities.

The loss of adhesive strength is definitely established, but cannot be explained in terms of time and temperature. However, when the humidity conditions are studied in relation to adhesion, it is noted that low adhesion corresponds to periods of low indoor humidity in Westfield. Since all the adhesive strength determinations were made in Westfield, the answer is obvious. The loss of adhesion is due solely to excessive drying of the adhesive. It is also significant that this phenomenon is confined wholly to the glue surface-sized papers.

Accelerated Aging Tests

With the definite establishment of the fact that the development of discoloration was a function of time and temperature, it was obvious that an accelerated aging test which would give the results of long periods of natural aging in a few hours or days, would simplify greatly the testing of new adhesives and papers. It was also obvious that since the development of discoloration proceeds more rapidly in a warmer climate, a suitable aging test might be developed with the aid of heat.

The first attempt at an artificial aging test consisted of merely heating envelopes for a protracted period. The temperature selected was 100 deg C., mainly because this temperature is used for determining moisture in paper and the electric oven could be made to serve a dual purpose. At this temperature, discoloration developed within 24 hours but unfortunately, certain of the papers tested also changed color quite rapidly which detracted from the utility of the aged samples for demonstration purposes.

Consequently, it was necessary to reduce materially the temperature at which the aging was conducted. Several temperatures varying from 40 to 100 deg. C., were tried with resultant development of discoloration in varying times. The temperature finally selected was 60 deg. C., for at that temperature, discoloration comparable with one year in the semi-tropical climate of Florida, was developed within 72 hours without changing the color of the paper to a noticeable degree. This test was used for some time with fair success. However, it was disclosed that inconsistencies developed in the test and it was therefore unsatisfactory.

For a time it was believed that the inconsistencies were introduced when the humidity factors were ignored. The test was modified to combine the factors of heat and humidity but here even greater inconsistencies resulted. It was then noted, that envelopes aged naturally in the open air did not discolor quite as rapidly as did envelopes which were packed in boxes and aged naturally. This fact led to the deduction that the products of the drying gum played an important part in the development of discoloration. Thus, the aging test must allow for this factor. A series of preliminary tests were made by aging gummed strips of paper in tightly corked test tubes. Here it was learned that consistent results were obtained, with 48 hours aging sufficient to develop maximum discoloration in all the samples tested.

With this data as a guide post, the development of a suitable aging test was fairly obvious. There were constructed small airtight metal boxes of sufficient size to hold approximately 50 envelopes of a standard commercial size. Numerous experiments were made to test the consistency of results obtained from this test. From these experiments, numerous interesting and important data were obtained.

Factors Influencing Artificial Aging

The most interesting factor discovered in these experiments was the effect of interruptions of the aging on the results obtained. It was found that an interruption of only a few minutes, long enough to open the box and remove a few samples, was sufficient to delay the development of maximum discoloration for 24 hours. That is, 72 hours aging at 60 deg.

C., without interruption would develop maximum discoloration while 96 hours' aging was required to achieve the same result if the test was interrupted once in process.

Tightness of the Box

Another interesting fact found to have an influence on the results obtained from the aging test was the tightness of the box. It was found that a loose-fitting cover had an even more pronounced effect on the development of discoloration, than did the interruption of the test. This was shown by the fact that after 96 hours at 60 deg. C., the samples aged in a box with a loose-fitting cover were but very faintly discolored while identical samples aged in a box with a tight-fitting cover showed quite noticeable color after 48 hours' aging at the same temperature.

Concentration of Samples

A third factor which was believed important, that of the concentration of samples in the box during aging, was also studied. Here it was shown that the number of samples placed in the box for aging was unimportant so long as the cover of the box fitted tightly and the test was uninterrupted.

As far as could be determined, these factors represent all the controlable factors influencing the results of the test. When cognizance is taken of their influence, the results of the test are quite accurate and when calibrated in terms of natural condition, are extremely valuable.

Interpretation of the Aging Test

The numerous results that show discoloration to be developed by the artificial aging test are of little value until interpreted in light of the natural aging test. This is easily accomplish by comparison of natural and artificially aged samples which disclosed that:

After 72 hours of uninterrupted artificial aging, the discoloration developed was found to correspond to that developed by 10 months' natural aging in Florida and Texas. The maximum discoloration was developed in the 72 hour aging and further aging did not develop any further discoloration, thus, the results of protracted aging under natural conditions can be readily predicted within a 72 hour test period by artificial means.

Conclusions

The discoloration of envelope adhesives has been studied and certain pertinent facts brought to light for the first time. The principal facts disclosed are:

1. Envelope papers surface-sized with glue are most susceptible to discoloration while the other classes of paper are practically unaffected in this manner.

2. The development of discoloration in envelope adhesives was found to progress more readily under the influence of elevated temperature.

3. The influence of heat upon envelope adhesives made possible the development of an artificial aging test that was both accurate and efficient.

4. The extent to which adhesion was lost in aging was studied and found to be best explained in terms of low humidity.

Acknowledgments

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Review Of Paper Industry Literature

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C. for 10 cents each. Send currency, not stamps.

Bleaching

Bleaching of Cellulose. Erwin Mayer. U. S. pat. 2,124,256 (July 19, 1938).—Cellulose of any origin is bleached according to known methods, e. g., with chloride of lime or sodium hypochlorite, with addition of about 18 grams of methylene blue per 1000 kilos of cellulose. The quantity of methylene blue depends on the percentage of contaminants in the cellulose. (Cl. 8-139)—A.P.-C.

Bleaching Pulp. Alfred O. Bragg, assignor to Kuehne Chemical Company. U. S. pt. 2,119,519 (June 7, 1938).—Material such as sulphite pulp is bleached by treating with a titanium compound in which the titanium has a valence less than 4, such as $Ti_2(SO_4)_3$, in the presence of an oxidizing bleaching agent such as magnesium hypochlorite while an alkaline pH is maintained. (Cl. 8-2)—A.P.-C.

Method of Bleaching Pulp or Paper Webs. Clark C. Heritage, assignor to Oxford Paper Company. U. S. pat. 2,125,634 (Aug. 2, 1938).—Paper or pulp in web form is flash-bleached by applying to at least one side of the web, in advance of the point where the web is dried, approximately 1% (based on the dry weight of fiber) of 100-volume hydrogen peroxide, and thereafter heating the web to render the hydrogen peroxide active to bleach the web. (Cl. 8-2)—A.P.-C.

Apparatus for Chlorinating Pulp. Clinton K. Textor, assignor to The Northwest Paper Company. U. S. pat. 2,130,402 (Sept. 20, 1938).—In a chlorinator in which the pulp circulates downwardly in a central shaft or compartment and upwardly in the surrounding annular space, the chlorine gas being introduced in the inner compartment, the latter is constricted at a suitable point located above the point of introduction of the gas, and the pulp circulating means are located in the constricted zone. (Cl. 261-93)—A.P.-C.

Bleaching Pulp. George P. Vincent, assignor to The Mathieson Alkali Works, Inc. U. S. pat. 2,129,719 (Sept. 13, 1938).—Pulp is bleached to any desired degree of whiteness without damage to the fiber by suspending in an alkaline solution and introducing therein chlorine dioxide. (Cl. 8-2)—A.P.-C.

Dyeing

The Control of pH in the Dyeing of Paper. B. Cornely. Wochbl. Papierfabr. 69, No. 42:859-60 (Oct. 15, 1938). Because of the many devious ways of treating stock before it enters the head box and because of the many different systems of sizing, the author derides the oft asserted optimum pH for each

dyestuff. Each individual application of a dyestuff is a problem in itself.—J.F.O.

Color and its Application to the Paper Industry. Benjamin J. Mayo, Jr. Paper Trade J. 107, No. 2: 21-25 (July 14, 1938).—A general discussion.—A.P.-C.

Coating

The Potentialities of Enzymes in the Paper Industry. R. A. Diehm. Paper Trade J. 106, No. 24:36-38 (June 16, 1938).—A brief general discussion.—A.P.-C.

Paper Making. J. G. Patrick. Am. Ink Maker 16, No. 2:18-21, 25; No. 3:27-31 (1938).—The manufacture and coating of paper are described and the influence of different treatments and defects on the printing properties of paper are discussed.—A.P.-C.

A Comparison of Modern Methods of Coating Paper. Paul de Guehery and E. G. Milham. Paper Trade J. 106, No. 26:76-77 (June 30, 1938); Paper Mill 61, no. 27:14-15, 18 (July 2, 1938).—A brief comparison of the festoon drier, brushless coater, air brush coater, polished drum coater, print-on coater and flow-on coater. At the present moment there is no indication that the newer machines will soon supplant the old conventional coaters, crude as they are. Even with recent developments, there is great room for further improvement.—A.P.-C.

Particle Size Distribution as it Affects Properties of Coating Clays. S. C. Lyons. Paper Trade J. 106, No. 26:102-103 (June 30, 1938).—A discussion of the influence of the particle size of clay on the color of coated paper, showing that particles size is the most important factor contributing to high finish.—A.P.-C.

Titanium Compounds in the Paper Industry. A. Esme. Papeterie 60:502-509, 563-566, 601-605 (June 10, 25, July 10, 1938).—A review of the origin and properties of titanium and of its use in the paper industry.—A.P.-C.

Coating Composition for Cellulose. Raymond E. Thomas, assignor to Canadian Industries Ltd. Can. pat. 373,934 (May 24, 1938).—For self-sustaining cellulosic sheet material such as paper, a coating composition that yields a dull finish on drying is prepared by dispersing about 1 part of cellulose nitrate in 5 to 6 parts of solvent, dispersing 1 part of cellulose acetate in 5 to 6 parts of solvent, mixing about 3 parts of the first with 4 parts of the second dispersion until homogeneous, and adding to about 23 parts of the mixture with constant agitation 8 parts of alcohol, 6 parts of castor oil and 9 of dibutyl tartrate.—A.P.-C.

Coating Webs. Marathon Paper Mills Company. Brit. pat. 482,792 (April 5, 1938).—In coating a web or sheet of material such as paper with a thermoplastic composition, e.g., as described in Brit. pat. 481,427, the composition is applied to the web by a heated doctor roll while the web is yieldingly supported upon a heated roll provided with a resilient surface covering of rubber, etc., and the coated web is then passed immediately to a chilled roller without coming into contact with any supporting surface.—A.P.-C.

Coating Fibrous Surfaces. John Fletcher, assignor to Plastergon Wall Board Company. U. S. pat. 2,130,530 (Sept. 20, 1938).—Paper leaving the paper machine driers is passed through three stacks of calenders. In the first stack it is moistened on both sides by means of water boxes, in the usual manner. Two consecutive rolls in the middle of the second stack are heated, preferably by steam, and at the second to last roll of this stack there is applied a water dispersion of a coating material such as nitrocellulose lacquers, rosin, synthetic resins, natural fossil resins, etc. The paper finally passes through the third stack, which contains two steam-heated rolls, and is then wound. (Cl. 91-70)—A.P.-C.

Method of Coating Paper. James D. MacLaurin, assignor to Seaman Paper Company. U. S. pat. 2,130,241 (Sept. 13, 1938).—Coating color is sprayed on the surface of a horizontally moving web of paper; and the coating thus applied is subjected, while still in "mobile" condition, to a high-velocity jet of compressed air directed at an angle to smooth and compact the coating. (Cl. 91-68)—A.P.-C.

Drying Coated or Gummed Paper. Donald B. Bradner, assignor to The Champion Paper and Fibre Company. U. S. pat. 2,130,665 (Sept. 20, 1938).—Coated or gummed paper is held flat on a wide-mesh, supporting, endless screen carrier, with the dry side in contact with the screen. Heated air is forced by a blower through a progressively-constructed channel and delivered to the paper in a gradually diverging passageway, the system constituting essentially an embodiment of a Venturi tube. (Cl. 34-48)—A.P.-C.

Method and Apparatus for Coating Paper. Russell S. Bracewell. U. S. pat. 2,130,060 (Sept. 13, 1938).—Coating color is picked up by a take-up roll dipping in a reservoir of the color and transferred to a rapidly rotating roll (which is close to but not in actual contact with the take-up roll), which discharges it on to a still more rapidly rotating spray roll. The latter is mounted close to but out of contact with the travelling web to be coated, which receives the color as a uniform finely divided spray. (Cl. 91-44)—A.P.-C.

Cleaning Roll. Peter J. Massey, Wm. F. Thiele and Bert F. Raprager, assignors of 9/10 to Consolidated Water Power and Paper Company. U. S. pat. 2,106,104 (Jan. 18, 1938).—The rolls used for distributing and applying the coating film in the apparatus covered by U. S. pats. 1,921,368, 1,921,369 and 2,105,488 are cleaned of any adhering film or foreign particles by means of a stone, granite or artificial stone roll. (Cl. 91-48)—A.P.-C.

Apparatus for Applying Mobile Films. Peter J. Massey, Wm. F. Thiele and Bert F. Raprager, assignors of 9/10 to Consolidated Water Power and Paper Company. U. S. pat. 2,105,488 (Jan. 18, 1938).—The invention provides various mechanical improvements of the coating apparatus covered by Massey's U. S. pats. 1,921,368 and 1,921,369. The improvements permit of closely controlling the thickness and distribution of the film on the roll surfaces; of making the required adjustments conveniently; and of readily separating contacting rolls to clean them, etc., without disturbing the initial adjustment. (Cl. 91-50)—A.P.-C.

Manufacture of Material for Impregnating and Coating Purposes. W. Gebhardt. Brit. pat. 482,833 (Oct. 5, 1936).—Not more than 10% (on the weight of the dry rubber) of rubber latex is stirred into molten paraffin wax, coaltar pitch, etc., at 60° to 90° C. (preferably 80° to 90° C.). The mixture is then heated to 200° to 250° C., with stirring, until all the water is driven off. The mixture becomes homogeneous, and may be used as an alkali-resisting coating agent for paper or paper articles, etc.—A.P.-C.

Apparatus for Coating Surfaces. Mortimer S.

North. U. S. pat. 2,109,647 (March 1, 1938).—The invention provides an apparatus for coating paper sheets by forcing a viscous liquid through a wire screen which is kept stationary during the time that the viscous liquid is being forced through it. (Cl. 91-18)—A.P.-C.

Coated Paper. Philip S. Barnhart, assignor to Westfield Paper Company. U. S. pats. 2,119,508 and 2,119,509 (June 7, 1938).—Paper such as glassine is prepared by the use of a coating comprising 40 to 50% of chlorinated rubber, 25 to 38% of resin comprising glycerol abietate and para-coumarone, 2 to 7% of paraffine wax and 15 to 21% of a plasticizer such as dibutyl phthalate. No. *2,119,508* covers the coating composition and No. *2,119,509* the paper obtained by its use. (Cl. 134-17; 91-68, resp.)—A.P.-C.

Stencil Sheet. Shinjiro Horii. U. S. pat. 2,122,774 (July 5, 1938).—Stencil sheets are prepared by coating sheets of a fibrous base such as Japanese yoshino paper with material comprising a gelatinous organic colloid, such as gelatine, dispersed in water, an oily softening agent and an active absorbent material. The following example is given of a suitable coating composition; gelatine 10, mono- or di-olein 5, glycol oleate 5, oleyl alcohol 5, heavy mineral oil 5, Turkey-red oil 15, ultramarine blue 10, activated Japanese acid clay 10, silica gel 10, water 300, cyclohexanol 5, hexamethylenetetramine 1, preservative 1. (Cl. 41-38.6)—A.P.-C.

Process and Apparatus for Coating Paper. James D. MacLaurin. U. S. pat. 2,118,212 (May 24, 1938).—The coating liquid is delivered to a pair of spaced, substantially parallel, elongated cylinders, each provided with a series of spraying nozzles, which are preferably of the atomizer type and which break up the coating liquid into a very fine mist by the action of air jets. The web of paper is moved continuously past the nozzles, and the cylinders carrying the nozzles are continuously rotated back and forth. (Cl. 91-45)—A.P.-C.

Applying Glue to a Paper Strip. Gaston Corse, assignor to Société dite "Anciens Etablissements L. Chambon." U. S. pat. 2,123,354 (July 12, 1938).—The gum or adhesive is applied to the paper while it is under tension, preferably as it passes vertically between two rolls. The adhesive is discharged from a nozzle which is supported in such a manner as to permit freedom of movement towards or away from the paper. A valve controls the discharge of gum and is normally urged to closed position, but is automatically opened when the valve arrives at a predetermined position close to the paper. (Cl. 91-12)—A.P.-C.

Paper Formed with a Paraffin Emulsion. Harold R. Rafton, assignor to Raffold Process Corporation. U. S. pat. 2,117,256 (May 10, 1938).—A paper which is suitable for lithographing, etc., is obtained by applying to a fibrous web an aqueous mixture comprising an adhesive, a pigment, and a so-called substantially nonbreakable emulsion of paraffin containing a water-soluble gum, and then drying the web. (Cl. 91-68)—A.P.-C.

Moistureproof Coated Paper and Process of Making the Same. Bert C. Miller, assignor to Bert C. Miller, Inc. U. S. pats. 2,117,199 and 2,117,200 (May 10, 1938).—No. *2,117,199*—Paper is provided with a coating comprising a metallic soap to enhance the moistureproof character of the coating, an ester gum adapted to make the coating glossy and hard to the touch, a plasticizer and a stearic acid wax adapted to increase the moistureproof character of the coating without the use of as much metallic soap as might otherwise be necessary to attain the same moistureproof character without the stearic acid wax, the proportions of materials in the coating being such that the base paper appears substantially transparent and possesses sufficient moistureproofness to allow not more than about 0.5 g. of water per 100 sq. in. of surface at 22° C. with 50% relative humidity to penetrate the coated paper in 24 hrs. No. *2,117,200*—A synthetic resinous composition comprising the plasticized reaction products formed by the esterification of a polybasic acid by a polyhydric alcohol, which is flexible, hard up to about 50° C. and non-blocking at normal temperatures, is applied in the molten state to a heated element to form a film thereon. The film is transferred to a surface of the paper to be coated at a temperature below that at which the fluidity of the resin is high enough to cause substantial impregnation of the base, and is quickly solidified substantially entirely by cooling before the film has substantially impregnated the paper. The exposed surface of the film is heated to smooth it. (Cl. 91-70)—A.P.-C.

Drying

Water Removal from Pulp and Paper. T. K. Sherwood, H. S. Gardner and R. P. Whitney. Paper Trade J. 106, No. 24:29-35 (June 16, 1938).—Data are presented on the water removal from pulp and paper, as obtained from the fourdrinier and pess section of a sulphite pulp machine and from a drum drier operating on sulphite bond paper. The results obtained from the pulp fourdrinier indicate the distribution of water removal from the various parts of the machine. The effect of temperature on the water removal is discussed. The study of drying as it actually occurs on the paper machine yielded results which compare very closely with laboratory data on the air drying of sulphite pulp sheets. Periods of constant-rate and falling-rate drying were clearly indicated. Sheet temperature measurements were obtained from which it was calculated that about 80% of the water removal occurs while the sheet is in actual contact with the rolls. It follows that the greater part of the water is transferred from the sheet to the felt, rather than directly to the air, and the importance of the felt in machine drying is discussed.—A.P.-C.

Factors Influencing Drainage Through Fourdrinier Wires. Harry G. Specht and C. M. Connor. Tech. Assoc. Papers 21:342-344 (June, 1938); Paper Trade J. 107, No. 5:38-40 (Aug. 4, 1938).—Results are given of some incomplete tests on the influence of acidity of the stock on drainage on the fourdrinier wire.

Results of Beloit Horizontal Dual Presses Operating on Various Grades of Paper. C. E. Macklem. Tech. Assoc. Papers 21:284-286 (June, 1938); Paper Trade J. 107, No. 2:40-42 (July 14, 1938).—A discussion of the performance of this type of press in the commercial manufacture of widely different paper grades.—A.P.-C.

Operating Results of the New Type Black-Clawson Wet End. L. E. Weiser. Paper Trade, J. 106, No. 26:92-93 (June 30, 1938); Paper Mill 61, No. 26:100, 103 (June 25, 1938).—A brief description of the new wet end installed in 1937 on the 143-inch board machine in the mill of National Folding Box Company, together with a discussion of the results obtained with it.—A.P.-C.

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING AUGUST 26, 1939

SUMMARY

Cigarette paper .....138 cs.
Wall paper .....11 bxs.
Painted paper .....14 cs.
Newsprint .....5,834 rolls
Printing paper .....9 cs., 186 rolls
Wrapping paper .....1,685 rolls
Packing paper .....100 bls.
Filter paper .....29 cs.
Drawing paper .....40 cs., 13 rolls
Bristol boards .....2 cs.
Surface baryta coated paper .....18 cs., 225 pkgs., 75 crates
Basic paper .....32 pkgs., 3 cs.
Photo paper .....11 cs.
Decalcomanias .....5 cs.
Tracing cloth .....33 cs.
Tissue paper .....13 bbls.
Fancy paper .....1 ble.
Bowl paper .....11 bls.
Paper tubes .....132 cs.
Miscellaneous paper .....206 rolls, 49 cs.

CIGARETTE PAPER

Irving Trust Co., *Ile de France,* Havre, 9 cs.
De Manduit Paper Corp., *Ile de France,* Havre, 128 cs.
Van Oppen & Co., *Exeter,* Marseilles, 1 cs.

WALL PAPER

S. K. Lonegren, *Drottningholm,* Gothenburg, 11 bxs.

PAINTED PAPER

J. W. Hampton Jr., & Co., *Ile de France,* Havre, 14 cs.

NEWSPRINT

International Paper Co., *International #1,* Gatineau, 377 rolls.
N. Y. Evening Journal, *Markland,* Liverpool, N. S., 475 rolls.
N. Y. Tribune, *Markland,* Liverpool, N. S., 1181 rolls.
World Telegram, *Markland,* Liverpool, N. S., 576 rolls.
Brooklyn Daily Eagle, *Markland,* Liverpool, N. S., 398 rolls.
International Paper Sales Co., *A.C.D.,* Batineau, 366 rolls.
Jay Madden Corp., *Mormacsea,* Kotka, 489 rolls.
Lunham & Reeves, Inc., *Mormacsea,* Kotka, 211 rolls.
Walker Goulard Plehn Co., Inc., *Mormacsea,* Kotka, 154 bls.
International Paper Sales Co., *Kermic* Gatineau, 307 rolls.
Nolan Bowmall & Co., Inc., *Vingaren,* Gothenburg, 81 rolls.
Jay Madden Corp., *Vingaren,* Viipuri, 143 rolls.
Jay Madden Corp., *Pr. Harding,* Finland, 393 rolls.
Perkins Goodwin & Co., *New York,* Finland, 274 rolls.
Jay Madden Corp., *New York,* Finland, 409 rolls.

PRINTING PAPER

S. H. Pomerance *Mauretania,* Southampton, 9 cs.
General Motors Overseas Operations, *New York,* Bremen, 186 rolls.

WRAPPING PAPER

——, *Mormacsea,* Rauma, 947 rolls.
Rohner Gehrig & Co., *Black Eagle,* Rotterdam, 10 rolls.
——, *Vingaren,* Gothenburg, 222 rolls.
Jay Madden Corp., *Vingaren,* Rauma, 506 rolls.

PACKING PAPER

J. P. Heffernan Paper Co., *New York,* Hamburg, 100 bls.

FILTER PAPER

H. Reeve Angel & Co., Inc., *Mauretania,* Southampton, 10 cs.
E. H. Sargent & Co., *Drottningholm,* Gothenburg, 19 cs.

DRAWING PAPER

Keuffel & Esser Co., *New York,* Hamburg, 40 cs., 13 rolls.

BRISTOL BOARDS

Keuffel & Esser Co., *American Merchant,* London, 2 cs.

SURFACE BARYTA COATED PAPER

Atlantic F'd'g Co., *New York,* Hamburg, 18 cs.
General Motors Overseas Operations, *New York,* Bremen, 225 pkgs., 75 crates.

BASIC PAPER

Dingelstedt & Co., *Beemsterdyk,* Rotterdam, 3 cs.
General Motors Overseas Operations, *New York,* Bremen, 32 pkgs.

PHOTO PAPER

Medo Photo-Supply Co., *Mauretania,* London, 1 cs.
J. J. Gavin & Co., *Queen Mary,* Southampton, 8 cs., (unsensitized).
Heemsoth Kerner Corp., *New York,* Hamburg, 2 cs.

DECALCOMANIAS

General Motors Overseas Operations, *New York,* Hamburg, 5 cs.

TRACING CLOTH

M. J. Corbett & Co., *Pr. Harding,* Hamburg, 33 cs.

TISSUE PAPER

Jay Madden Corp., *Scanpenn,* Helsingfors, 13 bbls.

FANCY PAPER

C. A. Haynes & Co., *Queen Mary,* Southampton, 1 ble.

BOWL PAPER

Hurley Johnson Corp., *Laconia,* Liverpool, 11 bls.

PAPER TUBES

——, *New York,* Hamburg, 132 cs.

MISCELLANEOUS PAPER

Japan Paper Co., *Yamagiri Maru,* Kobe, 13 cs.
Corn Exchange Bank Trust Co., *Yamagiri Maru,* Kobe, 31 cs.
Coty Processing Co., *Ile de France,* Havre, 4 cs.
Pitt & Scott, Inc., *Ile de France,* Havre, 4 rolls.
T. N. Fairbanks Co., *Akagi Maru,* Yokohama, 1 cs.
F. L. Kramer & Co., *Drottningholm,* Gothenburg, 94 rolls.
The Borregaard Co., Inc., *Drottningholm,* Gothenburg, 108 rolls.

RAGS, BAGGINGS, ETC.

——, *Cameronia,* Glasgow, 53 bls. paper stock.
Richard Shipping Co., *Mormacsea,* Copenhagen, 4 bls. rags.
B. D. Kaplan Co., *American Merchant,* London, 1 ble. rags.
National City Bank, *American Merchant,* London, 10 bls. rags.
W. J. Green, *Kuznets Lesov,* Leningrad, 79 bls. linen waste, 293 bls. flaxwaste, 139 bls. cotton cuttings.
Chase National Bank, *Kuznets Lesov,* Leningrad, 119 bls. flaxwaste, 1196 bls. linen rags.
Chase National Bank, *Laconia,* Liverpool, 69 bls. rags.
Castle & Overton, Inc., *Exeter,* Alexandria, 534 bls. rags.
W. Steck & Co., *Exeter,* Alexandria, 94 bls. rags.
——, *Exeter,* Alexandria, 147 bls. rags.
E. J. Keller Co., Inc., *Exeter,* ——, 607 bls., rags 241 bls. bagging.
Joe Levy's Son, *Ragnhild,* Antwerp, 525 bls. rags.
R. Blank, *Ragnhild,* Antwerp, 50 bls. rags.
Chase National Bank, *Ragnhild,* Rotterdam, 62 bls. bagging.

HIDE CUTTINGS

——, *American Shipper,* Liverpool, 362 bags.

OLD ROPE

D. M. Hicks, Inc., *Ragnhild,* London, 95 coils.

CASEIN

National City Bank, *Ile de France,* Havre, 267 bags.

CHINA CLAY

Whitaker Clark & Daniels, Inc., *Volendam,* Rotterdam, 578 bags.

WOOD PULP

Gottesman & Co., Inc., *Alssund,* Sundsvall, 3000 bls. dry sulphate, 500 tons.
Pulp Sales Corp., *Mormacsea,* Wiborg, 838 bls. mechanically ground pulp, 163 tons.

Pulp Sales Corp., *Mormacsea,* Rauma, 202 bls. bleached sulphite, 34 tons.
Perkins Goodwin & Co., *Alssund,* Sundsvall, 150 bls. dry sulphite, 25 tons; 180 bls. dry sulphate, 30 tons.
———, *Alssund,* Wallvik, 750 bls. dry sulphite, 162 bls. dry sulphate, 250 bls. dry mechanical pulp.
———, *Alssund,* Iggesund, 400 bls. unbleached sulphite, 2775 bls. sulphate.
Pagel Horton & Co., Inc., *Alssund,* Horneborg, 2296 bls. dry sulphite.
———, *Alssund,* Horneborg, 270 bls. dry chemical pulp.
E. M. Sergeant Pulp & Chemical Co., *Alssund,* Hernosand, 750 bls. dry sulphite, 125 tons.
Bank of N. Y. Trust Co., *Alssund,* Hernosand, 810 bls. dry sulphite, 135 tons.
Stora Kopparberg Corp., *Alssund,* Gefle, 545 bls. dry wood pulp, 109 tons.
———, *Alssund,* Gefle, 1500 bls. dry sulphite, 304 tons.
Pulp Sales Corp., *Scanpenn,* Wiborg, 762 bls. mechanically ground pulp, 150 tons; 2544 bls. sulphate, 435 tons; 508 bls. wet sulphite, 92 tons; 262 bls. wet sulphate, 52 tons.
Castle & Overton, Inc., *Scanpenn,* Wiborg, 406 bls. unbleached wood pulp, 80 tons.
Pulp Sales Corp., *Scanpenn,* Kotka, 750 bls. sulphate, 150 tons.
M. Sone, *Exmoor,* Sonstanza, 250 bls. bleached sulphite, 50 tons.
Perkins Goodwin & Co., *Vingaren,* Gothenburg, 140 bls. sulphate.
Bulkley Dunton Pulp Co., Inc., *Vingaren,* ———, 425 bls. sulphate, 400 bls. sulphite.
Beaverite Products, Inc., *New York,* Hamburg, 114 bls. wood pulp, 25 tons.

WOOD PULP BOARDS

Jay Madden Corp., *Mormacsea,* Wiborg, 8 bls.
Jay Madden Corp., *Mormacsea,* Kotka, 103 rolls.
Fibre Case & Nevelty Co., *Vingaren,* Gothenburg, 14 bls.
Salwen Paper Co., *Vingaren,* Gothenburg, 5 bls.
Jay Madden Corp., *Vingaren,* Viipuri, 240 bls.
H. Fuchs & Son, *Drottningholm,* Gothenburg, 65 crates.

NEWARK IMPORTS

WEEK ENDING AUGUST 26, 1939

Pulp Sales Corp., *Mormacsea,* Wiborg, 10065 bls. sulphite, 1840 tons.
Pulp Sales Corp., *Mormacsea,* Rauma, 260 bls. mechanically ground pulp, 52 tons.

BOSTON IMPORTS

WEEK ENDING AUGUST 26, 1939

C. H. Powell & Co., *Beemsterdtk,* Rotterdam, 12 rolls straw boards.
Elliott Addressing Machine Co., *Yamagiri Maru,* Kobe, 7 cs. paper.

NEW LONDON IMPORTS

WEEK ENDING AUGUST 26, 1939

Gottesman & Co., Inc., *Taurus,* Sweden, 2400 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 26, 1939

Gottesman & Co., Inc., *Vingaren,* Gothenburg, 381 bls. sulphite.
Neidich Process Co., *Mormacsea,* Helsingfors, 80 bbls. tissue paper.
Pulp Sales Corp., *Mormacsea,* Wiborg, 155 bls. sulphite, 25 tons.
J. W. Hampton Jr., & Co., *Mormacsea,* Kotka, 78 rolls newsprint.
Jay Madden Corp., *Mormacsea,* Kotka, 135 bls. newsprint.
Brown Bros., Harriman & Co., *Mormacsea,* Rauma, 57 rolls wrapping paper.
Pulp Sales Corp., *Mormacsea,* Rauma, 285 bls. sulphite, 51 tons.
Castle & Overton, Inc., *Black Eagle,* Rotterdam, 60 bls. rags.
Castle & Overton, Inc., *Scanpenn,* Stockholm, 1200 bls. dry sulphite, 200 tons.
J. W. Hampton, Jr., & Co., *Scanpenn,* Kotka, 110 rolls newsprint.
Public Ledger, Inc., *Scanpenn,* Kotka, 499 rolls newsprint.
Wilkinson Bros., & Co., Inc., *Scanpenn,* Kotka, 107 rolls newsprint.
Jay Madden Corp., *Scanpenn,* Kotka, 231 rolls wood pulp boards, 50 tons.
Bulklev Dunton Pulp Co., Inc., *Vingaren,* ———, 866 bls. sulphate, 500 bls. sulphite.
Perkins Goodwin & Co., *Vingaren,* Gothenburg, 1066 bls. sulphate.
The Borregaard Co., Inc., *Vingaren,* Gothenburg, 22 bls., 187 rolls paper.
Pulp Sales Corp., *Vingaren,* Kotka, 260 bls. mechanically ground pulp.
Castle & Overton, Inc., *Vingaren,* Viipuri, 654 bls. unbleached wood pulp.
Pulp Sales Corp., *Vingaren,* Rauma, 260 bls. mechanically ground pulp.

WILMINGTON IMPORTS

WEEK ENDING AUGUST 26, 1939

Pulp Sales Corp., *Mormacsea,* Rauma, 5420 bls. bleached sulphite, 935 tons.
Bulkley Dunton Pulp Co., Inc., *Vingaren,* ———, 1875 bls. sulphite.
Pulp Sales Corp., *Vingaren,* Viipuri, 3567 bls. sulphite.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 26, 1939

Gottesman & Co., Inc., *Alssund,* Sundsvall, 3000 bls. dry sulphite, 500 tons.
Jay Madden Corp., *Mormacsea,* Kotka, 477 rolls newsprint.
Congoleum Nairn Co., *Gran,* Marseilles, 134 bls. rags.
Perkins Goodwin & Co., *Alssund,* Sundsvall, 1500 bls. dry sulphite, 250 tons; 1800 bls. dry sulphate, 300 tons.
———, *Alssund,* Sundsvall, 660 bdls. wall board.
———, *Alssund,* Horneborg, 330 bls. dry chemical pulp.
Pagel Horton & Co., Inc., *Alssund,* Horneborg, 600 bls. dry sulphate.
———, *Alssund,* Horneborg, 1853 bdls. wall board.
Bank of N. Y. Trust Co., *Alssund,* Hernosand, 1500 bls. dry sulphite, 250 tons.
Pulp Sales Corp., *Vingaren,* Kotka, 4760 bls. mechanically ground pulp.
Castle & Overton, Inc., *Vingaren,* Viipuri, 1307 bls. unbleached wood pulp.
Pulp Sales Corp., *Vingaren,* Rauma, 330 bls. sulphate, 1446 bls. sulphite.
Castle & Overton, Inc., *Vingaren,* Stockholm, 810 bls. dry sulphite.
M. Sone, *Vingaren,* Gothenburg, 226 bls. wood pulp.
The Borregaard Co., Inc., *Vingaren,* Gothenburg, 36 bls. paper.
———, *Beemsterdyk,* Rotterdam, 52 bls. rags.

NEWPORT NEWS IMPORTS

WEEK ENDING AUGUST 26, 1939

Pulp Sales Corp., *Scanpenn,* Wiborg, 1325 bls. sulphite, 265 tons.
Pulp Sales Corp., *Scanpenn,* Kotka, 2500 bls. sulphate, 500 tons.
W. M. Stone & Co., *Scanpenn,* Kotka, 99 rolls newsprint.

DETROIT IMPORTS

WEEK ENDING AUGUST 26, 1939

Pagel Horton & Co., Inc., *Glittrefjell,* Norway, 331 rolls newsprint.

MONTREAL IMPORTS

WEEK ENDING AUGUST 26, 1939

Gottesman & Co., Inc., *Reias,* Sweden, 5080 bls. wood pulp.
Pagel Horton & Co., Inc., *Charles L. D.,* Sweden, 24970 bls. wood pulp.

Industrial Careers for Women

A young woman prominent in Industrial Advertising is one of the authors of a new book called "Advertising Careers for Women", published by Harper & Brothers. The new publication, the first book of complete vocational information for young women who seek to enter advertising, is a compilation of 22 lectures given last fall under the sponsorship of The Philadelphia Club of Advertising Women.

Miss Frances M. Suarez, head of the advertising department of Philadelphia Quartz Company, contributor of the chapter on Industrial Advertising, says that it is attractive to women for three reasons:

1. You get in on the beginning of advertising what may be converted into an epoch-making invention.
2. It is the most "modern" of all advertising fields . . . literally the world of tomorrow
3. It is never dull!

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 30, 1939.

From the expressions of opinion in the trade there is apparently widespread belief that a substantial improvement in sales volume should take place early next month. The underlying factors by which business activity is commonly appraised appear favorable and the slow, uptrend movement during this month is taken as a good, if not infallible, indication that industry and trade will attain a satisfactory volume in the last quarter of this year and carry over the Christmas season.

The index of general business activity for the week ended August 19 stood at 91.5 per cent, compared with 91.3 per cent for the preceding week and with 84.1 per cent for the corresponding period last year. Production of paper as reported by 202 mills for the week ended August 19 stood at an estimated 81.9 per cent, compared with 82.7 per cent for the previous week, and with 78.0 per cent for the corresponding period last year. Paper board production for the week ended August 19 was 72.0 per cent, compared with 67.0 per cent for the like period last year.

The newsprint situation reflects no important change at this date. In the event of hostilities in Europe, increased publishers' demands and interference with shipments from Europe, would no doubt result in increased business for Canadian mills, although newsprint mills in this country are reported to be doing well, while many Canadian producers have curtailed production this year, several mills cutting production 25 per cent or more. Prices continue unchanged.

Sales volume in many grades of paper is reported at about on the level of the previous week, with the prospect of improved business after Labor Day. The outlook for a good demand for practically all grades of paper in the final quarter of this year is viewed in some quarters of the trade as nearly if not quite equal to that in 1937.

Production and orders for groundwood papers has been steadily rising for some weeks and is currently reported at a high level. In common with many other grades of paper, production of groundwood papers has been increased in the normally slack period in mid-summer and the outlook for fall business is reported as excellent.

Paper board production is keeping up well under an active demand. Sales volume in many grades during the current month has about equalled the high record in this industry. The board market is firm with some recent upward revisions in some grades. News and chip board are currently quoted at from $32.50 to $35 per ton, the lower quotations applying to the metropolitan area. Prices on other grades remain unchanged.

Mechanical Pulp

Consumption of mechanical pulp is reported at a good level with many groundwood paper mills running at a high rate of capacity, around 90 per cent. No important change in prices has been reported this week.

Chemical Pulp

The chemical pulp market is reported as unchanged for the current week. Some talk is heard as to the probable effect of war in Europe on pulp prices. In the advent of conflict prices would, of course, rise to more than double current quotations, insurance rates would be increased and shipments would be more difficult to make if the English fleet was active in the Baltic, as during the World War. Domestic producers would stand to benefit. Total imports of all grades of foreign pulp were 1,710,513 tons in 1938, of which 897,129 tons came from Sweden and 467,443 tons from Canada.

Old Rope and Bagging

Limited activity continues in the old rope market. The expectations, or hope, of a broader market by dealers has failed to materialize and no important change in the market situation has thus far developed. Prices continue unchanged.

No important change has been reported in old bagging this week. Supplies are said to be rather limited but mills are buying cautiously and apparently have no difficulty in obtaining all the tonnage they require at prevailing quotations, which remain unchanged.

Rags

The demand for a few grades of new cotton cuttings continues steady. Reports from dealers indicate that many of the lower grades are moving rather slowly. The domestic rag market as a whole is moderately active, with prices holding fairly firm and unchanged on all grades of paper making rags.

Old Waste Paper

The old waste paper market continues firm with no important change in prevailing quotations, except on old kraft, machine compressed bales, which is currently quoted at from .75 to .80.

Twine

Some improvement in sales volume has been reported on a few grades of twines this week. Prices continue unchanged on all grades of hard and soft fiber twines at this date.

Salesmens' Party on Sept. 20

The Salesmens' Association of the Paper Industry, E. O. Merchant, secretary, 122 East 42nd street, New York, has just announced that the annual party of the association to be held at Beth-Page State Park, Long Island, N. Y., will be held on Wednesday, September 20, and not on September 7 as previously announced.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 30, 1939.

BLANC FIXE—Quotations on blanc fixe continue firm and conform to prevailing market prices. The pulp is quoted at from $42.50 to $45 per ton, in bulk; the powder is offered at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—Prices on bleaching powder continue firm and unchanged at prevailing market quotations. Bleaching powder is currently quoted at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein continues good with prices firm. Standard domestic casein, 20-30 mesh, is currently quoted at 12½ cents per pound; 80-100 mesh, at 13 cents per pound. All prices in bags, car lot quantities.

CAUSTIC SODA—Quotations on caustic soda remain unchanged at prevailing market levels. Solid caustic soda is currently quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay continue firm and conform to prevailing market quotations. Imported clay is quoted at from $13 to $25 per ton, ship side. Domestic filler clay is currently offered at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines.

CHLORINE—Quotations on chlorine continue firm and unchanged at prevailing market levels. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported as firm for the current week, with prices on some grades a little lower than last week. "G" gum rosin is currently quoted at $4.60; "FF" wood rosin at $4.30, per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent gum rosin size is offered at $2.63 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices on salt cake continue firm and unchanged at prevailing market quotations. Prices range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12 per ton, f.o.b., shipping point. Imported salt cake is offered at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—Quotations on soda ash continue firm and conform to prevailing market prices. Current quotations on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.25.

STARCH—The corn starch market is reported firm under a good demand. Globe pearl is currently quoted at $2.45 per 100 pounds; special paper starch at $2.55 per 100 pounds; all prices in bags, car lot quantities, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina continue firm and unchanged at prevailing market levels. The commercial grades are offered at $1.15; iron free at $1.30, per 100 pounds, in bags, car lot quantities, f.o.b., works.

SULPHUR—Prices on sulphur are reported as firm and unchanged at prevailing market levels. Annual contracts are quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are offered at $19 per ton.

TALC—Prices on talc remain firm and conform to prevailing market levels. Domestic talc is quoted at from $15 to $18 per ton, Eastern mines. Imported talc is offered at from $20 to $40 per ton, on dock.

Market Quotations

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	@	—
Kraft—per cwt.—Delivered Zone A			
No. 1 Northern	$4.75	@	$5.25
Superstandard	4.12½	@	4.62½
Northern Standard Wrapping	4.00	@	—
Standard Wrapping	3.50	@	—
Tissues—Per Ream—Carlots			
White No. 1	$0.82½	@	—
White No. 1 M. G.	.80	@	—
White No. 1½	.67½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.65	@	—
Colored	.77½	@	—
Kraft	.65	@	—
Manila	.60	@	—
Unbl. Toilet, 1 M.	2.65	@	—
Bleached Toilet	5.26	@	—
Paper Towels—Per Case			
Unbleached, Jr.	$1.75	@	—
Bleached Jr.	3.10	@	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	7.75	@	9.75
No. 1 Manila Wrapping, 35 lb.	5.00	@	—
No. 2 Manila Wrapping, 35 lb.	4.75	@	—
Boards, per ton—			
News	32.50	@	35.00
Chip	32.50	@	35.00
Sgl. Mla. Lt. Comp.	42.50	@	—
Jute Lined Chip	42.50	@	45.00
White Pat. Coated	55.00	@	57.50
Kraft Liners	45.00	@	—
Binders Boards	71.00	@	77.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1.	$39.10@$46.00	$40.25@$47.25
100% Rag	31.05@ 36.50	32.20@ 37.75
85% Rag	.....	29.90@ 35.00
75% Rag	23.60@ 27.75	24.75@ 29.00
65% Rag	.....	21.65@ 26.25
50% Rag	17.55@ 21.50	18.70@ 22.75
25% Rag	14.65@ 17.75	15.80@ 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$8.60@$10.50	$9.75@$12.00
No. 2	7.70@ 9.50	8.90@ 10.75
No. 3	6.75@ 8.25	7.90@ 10.00
No. 4	7.00@ 8.50	8.20@ 10.00

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper,
Delivered in Zone 1:

No. 1 Glossy Coated	$11.30@$12.75
No. 2 Glossy Coated	9.70@ 11.00
No. 3 Glossy Coated	8.60@ 10.00
No. 4 Glossy Coated	8.05@ 9.25
No. 1 Antique (watermarked)	8.05@ 9.25
No. 2 Offset	7.45@ 8.50
A Grade E. F.	7.20@ 8.25
A Grade S. & S. C.	7.45@ 8.50
B Grade E. F.	6.65@ 7.75
B Grade S. & S. C.	6.90@ 8.00
C Grade E. F.	6.40@ 7.50
C Grade S. & S. C.	6.65@ 7.75
D Grade E. F.	6.10@ 7.00
D Grade S. & S. C.	6.35@ 7.25

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	22.50	@	24.00
Dry	22.50	@	24.00
(Delivered)			
No. 1 Domestic and Canadian	29.00	@	33.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	2.25	@	2.75
Prime Qualities—			
Easy-Bleaching Sulphite	1.90	@	2.00
Strong Unbleached Sulphite	1.70	@	2.00
(On Dock, Atlantic Ports)			
Kraft Bleached	2.50	@	2.75
Kraft Light & Strong	1.50	@	1.60
Kraft No. 1	1.40	@	1.50
Kraft No. 2	1.25	@	1.30
(F. o. b. Pulp Mill)			
Kraft Domestic	1.25	@	1.75
(Delivered)			
Soda Bleached	2.55	@	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.90	@	7.00
Silesias No. 1	4.50	@	4.75
New Unbleached	6.75	@	7.00
Blue Overall	4.90	@	5.00
Fancy	1.75	@	2.00
Washables	1.50	@	1.60
Mixed Khaki Cuttings	2.25	@	2.50
O. D. Khaki Cuttings	3.25	@	3.40

Old Rags

White, No. 1—			
Repacked	2.90	@	3.15
Miscellaneous	2.10	@	2.25
White, No. 2—			
Repacked	1.50	@	1.60
Miscellaneous	1.25	@	1.40
Thirds and Blues—			
Repacked	1.30	@	1.40
Miscellaneous	1.15	@	1.20
Roofing Rags—			
No. 1	.90		1.00
No. 2	.67½	@	.77½
No. 3 (bagging)	.55	@	.65
No. 4	.60	@	.65
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	—

PULP

BLEACHED SULPHITE
'Stormont' Grade

BLEACHED SODA
'Seagull' Grade

GROUNDWOOD
'Crabtree' Grade

BLEACHED KRAFT
'Tuftare Fibre' Grade

made by

HOWARD SMITH PAPER MILLS LIMITED
407 McGill St., Montreal, Canada

Sulphite & Soda Mill: Cornwall, Ont. *Groundwood Mill:* Crabtree Mills, P.Q. *Kraft Mill:* Windsor Mills, P.Q.

Since 1901

Dietz Machine Works
DIETZWORKS PHILA PA
MANUFACTURERS

TOILET ROLL CONVERTING MACHINES
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SCREENS
of Perforated Metal

The Harrington & King Perforating Co.
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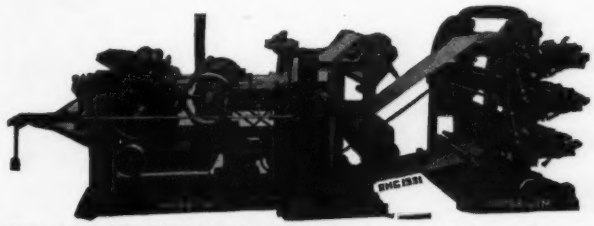
PROFIT BY THIS BAG MAKERS EXPERIENCE



PMC 1591. POTDEVIN High-Speed "Century Line" Flat & Square Grocery, Notion & Specialty Bag Machine.

The installation of the first two POTDEVIN "Century Line" bag machines quickly proved to this large manufacturer of paper bags that his old machines were liabilities.

After operating these units for only two months he ordered 4 more machines and 8 more in the following six months.

Modern, high-speed POTDEVIN "Century Line" bag machines are replacing slow, inefficient equipment in bag factories everywhere.

POTDEVIN BAG MACHINERY PRINTING PRESSES

POTDEVIN MACHINE CO.
1223 58th Street Brooklyn, New York

Knox Felts

EXCELSIOR Knox Woolen Co. Mill Camden, Me. FELTS & JACKETS

HIGH POROSITY

. . . as a characteristic of a paper maker's felt will, not only add to the life of felt, but saves time lost on the machine due to excessive shut downs for washing. Specify

EXCELSIOR FELTS

and minimize this trouble. Made by the Knox Woolen Co., of Camden, Maine, since 1864.

BULKLEY, DUNTON & CO.
295 Madison Ave. New York, N. Y.
CAledonia-5 5360-66

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	@	4.75
No. 2 White Cotton.	3.25	@	3.75
No. 3 White Cotton.	2.50	@	3.00
No. 4 White Cotton.	1.90	@	2.20
Extra Light Prints.	2.00	@	2.40
Ord. Light Prints...	1.75	@	2.15
Med. Light Prints...	1.55	@	1.95
Dutch Blue Cottons.	2.25	@	2.50
French Blue Linens.	3.00	@	—
Checks and Blues...	2.00	@	—
Linsey Garments....	1.90	@	2.00
Dark Cottons.....	1.50	@	1.60
Old Shopperies.....	1.30	@	1.45
New Shopperies.....	1.45	@	1.50
French Blues.....	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.60	@	1.75
Domestic	1.50	@	1.60
Wool Tares, light...	1.60	@	1.70
Wool Tares, heavy..	1.80	@	1.90
Bright Bagging.....	1.50	@	1.60
Manila Rope—			
Foreign 2.60	@	2.75	
Domestic	2.75	@	3.00
Jute Threads.....	3.00	@	3.25
Sisal Strings	1.50	@	1.60
Mixed Strings....	.55	@	.60

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.30	@	2.40
Ordinary Hard White No. 1....	1.90	@	2.00
Soft White No. 1..	1.60	@	1.75
Soft White Extra..	2.25	@	2.40
Flat Stock—			
Stitchless	.80	@	.85
Overissue Mag	.70	@	75
Solid Flat Book....	.60	@	.65
Crumbled No. 1....	.40	@	.45
Ledger Stock White.	1.05	@	1.15
Ledger Stock Colored	.60	@	.70
Manila—			
New Env. Cut....	1.40	@	1.50
New Cuttings.....	1.00	@	1.20
Old Kraft Machine—			
Compressed bales..	.75	@	.80
News—			
No. 1 White News	1.25	@	1.30
Strictly Overissue.	.40	@	.45
Strictly Folded....	.37½	@	.40
Corrugated	.45	@	.47½
No. 1 Mixed Paper..	.32½	@	.35

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.12¾	@	.14¾
White Hemp.....	.13¾	@	.15¾
Fine Polished—			
Fine India.....	.16	@	.18
Unpolished—			
Box	.09½	@	—
Paper Makers.....	.09½	@	.10½
Tube Rope.....	.10¼	@	.12½
Wall Paper.....	.10¾	@	.12½
Wrapping	.12	@	—
Soft Fiber Rope...	.12	@	.14
Cotton	.16	@	.19

(Hard Fiber)

Medium Java.....	.11	lb	.17
Mex. Sisal.....	.10	@	.16
Manila	.16	@	.23

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phil.)

Shirt Cuttings—			
New White, No. 1.	.06	@	.06½
New White, No. 2.	.03½	@	.04
Light Silesias.....	.03½	@	.04
Silesias, No. 1....	—	@	.04½
Black Silesias, soft	.03	@	.03¼
New Unbleached..	.05½	@	.06
Washable, No. 1..	.01½	@	.01¾
Blue Overall.....	.04	@	.04½
Cottons—According to grades—			
Washable No. 2...	.01	@	.01¼
New Blue.....	.01	@	.01¾
Fancy Percales...	—	@	.02½
New Black Soft...	.03	@	.03½
New Light Seconds	—	@	.04½
New Dark Seconds	.50	@	.75
Khaki Cuttings—			
No. 1 O. D.....	.03	@	.03½
No. 2 Mixed.....	.02½	@	.02¾
Corduroy	—	@	.02
New Canvas.....	.05	@	.05½
New Black Mixed.	.02½	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	2.75	@	3.00
Miscellaneous	2.00	@	2.25
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1.....	.90	@	1.10
Domestic No. 1...	.80	@	.90
Domestic No. 2...	.60	@	.65
Roofing Bagging...	.40	@	.45

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	—	@	1.50
Domestic	1.50	@	1.60
Manila Rope.....	—	@	3.25
Sisal Rope.....	1.50	@	1.75
Mixed Rope.....	.75	@	1.00
Scrap—			
No. 1.....	—	@	1.50
No. 2.....	.80	@	.90
Wool Tares, heavy..	3.25	@	3.50
Mixed Strings.....	.45	@	.50
No. 1 New Light Burlap	2.50	@	3.00
New Burlap Cuttings	1.75	@	2.00

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White.	1.75	@	1.80
No. 2 Soft White.	1.40	@	1.50
No. 1 Mixed....	.65	@	.75
Solid Ledger Stock..	1.45	@	1.50
Ledger Stock, white.	1.10	@	1.15
Ledger Stock, colored	.75	@	.80
No. 1 Books, heavy..	.60	@	.65
Manila Cuttings....	1.45	@	1.50
Print Manila.....	.45	@	.50
Container Manila....	.42½	@	.47½
Kraft Paper.....	.65	@	.70
No. 1 Mixed Paper..	.37½	@	.40
Straw Board Chip...	.25	@	.30
Binders Board Chip.	.30	@	.35
Corrugated Board...	.30	@	.35
Overissue News.....	.45	@	.50
Old Newspapers.....	.35	@	.40

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White.	1.85	@	2.15
No. 2 Mixed.....	.75	@	.80
Solid Ledger Books..	1.30	@	—
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers.....	.85	@	.90
No. 1 Books, heavy..	.70	@	—
No. 1 Books, light..	.65	@	.75
Crumpled Stitchless Book Stock.....	.55	@	.65
Manila Env. Cuttings	1.70	@	1.85
Manila Envelope Cuttings, Extra Quality	2.00	@	2.10
No. 1 Old Manila...	.65	@	.70
White Blank News..	1.30	@	1.40
No. 1 Kraft.....	.70	@	.75
Mixed Papers.....	.22½	@	.25
Print Manila	.45	@	.55
Container Manila....	.32½	@	.35
Old Newspapers.....	.32½	@	.35
Paper Wool Strings..	.60	@	.65
Overissue News.....	.45	@	.50
Box Board Chips....	.25	@	.30
Corrugated Boxes...	.32½	@	.35
Kraft corrugated boxes	.65	@	.75
Screening Wrappers.	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.50	@	2.65
Domestic	2.65	@	2.75
Sisal Rope	1.75	@	1.85
Mixed Rope.....	.45	@	.50
Transmission Rope..	1.80	@	1.90
Soft Jute Rope	2.00	@	2.25
Jute Carpet Threads.	.75	@	.90
Gunny Bagging—			
Foreign	1.50	@	1.65
Domestic	1.35	@	1.40
Bleachery Burlap....	2.50	@	2.70
Scrap Burlap—			
Foreign	1.35	@	1.40
Domestic	1.25	@	1.40
Scrap Sisal.....	1.55	@	1.60
Scrap Sisal for Shredding	1.75	@	1.80
Wool Tares, Heavy..	1.40	@	1.50
New Burlap Cuttings	2.00	@	2.25
Aust. Wool Pouches.	2.00	@	2.10
Heavy Baling Bagging	1.50	@	1.60
Paper Mill Bagging..	.85	@	1.00
No. 2 Bagging.....	.45	@	.50

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints...	.03¼	@	.03½
New White No. 1....	.0675	@	.0690
New Light Flannelettes	.05	@	—
Silesias No. 1.....	.04	@	.04¼
New Black Silesias..	.03½	@	.03¾
Soft Unbleached....	6.50	@	7.00
Blue Cheviots	.05	@	.05¼
Fancy	.02	@	.02½
Washable	.02	@	.02½
Cottons—According to grades—			
Blue Overalls.....	.04¾	@	.05
New Black, soft..	.03¾	@	.04
Khaki Cuttings.....	.02½	@	.03
O. D. Khaki.....	.03	@	.03¼
Corduroy	.02¾	@	.03
New Canvas.....	.06¾	@	.07¼
B. V. D. Cuttings...	.06¾	@	.07

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04¼	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues...	1.75	@	2.00
Old Blue Overalls...	1.50	@	—
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62¼
Black Stockings.....	3.90	@	4.00
Roofing Stock—			
No. 1.....	1.00	@	1.10
No. 2.....	.65	@	.70
No. 3.....	.45	@	.50

Foreign Rags

(F. o. b. Boston)

Dark Cottons.....	.90	@	1.00
Dutch Blues.....	2.65	@	2.75
New Checks and Blues	2.85	@	3.00
Old Fustians.....	2.25	@	2.50
Old Linsey Garments.	2.10	@	2.25
New Silesias.....	3.75	@	4.00

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings..	1.80	@	1.90
No. 1 Hard White.	1.70	@	1.80
No. 1 Soft White	1.50	@	—
Ledger & Writings	.75	@	.80
Solid Books.....	.45	@	.50
Blanks	.90	@	—
Krafts	.45	@	.50
New Kraft Cuts.....	1.10	@	—
Manila Env. Cuts...	Nominal		
Ex. No. 1 Manila...	Nominal		
Print Manila	Nominal		
Overissue News.....	.35	@	—
Old Newspapers—			
No. 1 Folded News	.25	@	.30
No. 1 Mixed Paper	.15	@	.20
Roofing Stocks—			
No. 1.....	1.00	@	1.05
No. 2.....	.85	@	—

TORONTO

Paper

Bonds

Direct mill shipment in two-ton lots

No. 1 White $35.50	@	—	
No. 1 Tints	36.50	@	—
No. 2 White	25.50	@	—
No. 2 Tints	26.50	@	—
No. 2 Golden Rod..	27.50	@	—
No. 3 White	21.00	@	—
No. 4 White	15.00	@	—
No. 4 Tints	16.00	@	—
No. 4 Golden Rod...	17.00	@	—
Direct mill shipment in three-ton lots			
No. 5 White $10.50	@	—	
No. 5 Tints	11.50	@	—
No. 5 Golden Rod..	12.00	@	—
No. 6 White	9.00	@	—
No. 6 Tints	9.50	@	—
No. 6 Golden Rod..	11.00	@	—
No. 7 White	8.00	@	—
No. 7 Tints	8.50	@	—
No. 7 Golden Rod..	10.00	@	—
Book—			
No. 1 M. F.	$7.00	@	—
No. 2 M. F.	6.50	@	—
No. 3 M. F.	5.35	@	—
No. 1 S. C.	7.25	@	—
No. 2 S. C.	6.75	@	—
No. 3 S. C.	5.85	@	—

Coated Book & Litho

Ton Lots (resale)

No. 1 .....$12.00	@	—	
No. 2	10.25	@	—
No. 3	8.90	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown.....	4.85	@	5.25
White Wrap.....	4.00	@	—
"B" Manila.....	4.90	@	6.15
No. 1 Manila.....	5.50	@	6.90
Fiber	5.50	@	6.90
Kraft No. 2.....	5.50	@	6.90

(F. o. b. Cars, Toronto)

News per ton—			
Rolls (contract)..)46.00	@	—	
Sheets 54.00	@	—	

Pulp

Ground wood.....$29.00	@	—	
Unbleached sulphite.	44.00	@	—
Bleached sulphite...	54.00	@	—
Kraft	50.00	@	—
Soda	54.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut...	2.00	@	—
Soft White.....	1.75	@	—
White Blk. News..	1.25	@	1.10
Book and Ledger—			
Flat Magazine and Book Stock (old)	.70	@	—
Light and Crumpled Book Stock.	.60	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut...	1.35	@	—
Printed Manilas...	.45	@	—
Kraft	.95	@	—
News and Scrap—			
Strictly Overissue..	.50	@	—
Strictly Folded....	.45	@	—
No. 1 Mixed Paper..	.30	@	—

Domestic Rags

(Price to Mills, f.o.b. Toronto)

No. 1 White Shirt Cuttings	.06½	@	.06¾
Light Prints.....	.03	@	.03¼